Appendix B

Response Summary

Burlington Northern Livingston Shop Complex

Livingston, Montana

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1.0 INTRODUCTION

The Montana Department of Environmental Quality (DEQ) released a Proposed Plan describing the State's preferred final remedy at a public meeting on September 22, 1998 in Livingston. A public comment period was held from September 22, 1998 through November 23, 1998. On October 23, 1998 a public hearing was held in Livingston to accept oral comments on the Proposed Plan and feasibility studies (FSs). DEQ received oral comments from nine people at the public hearing. DEQ also received written comments from nine individuals or organizations during the public comment period, several of whom had also submitted oral comments; one of these comments was received after the public comment period ended, but DEQ considered and responded to this comment. All comments received are contained in DEQ's Administrative Record.

1.1 Community Involvement Background

DEQ has conducted community involvement activities for the BN Livingston Shop Complex (sometimes referred to as the site) in accordance with state and federal laws and U.S. Environmental Protection Agency (EPA) guidance. DEQ strongly believes citizens of Montana, especially residents living near Superfund sites who will be most affected by agency decisions, should have the opportunity to be actively involved in the decision making process. DEQ has made every effort to involve the community, including local officials and residents, in all aspects of the investigation and cleanup.

1.1.1 Notification of Public Comment Period

Press releases were sent to newspapers and radio stations to announce public comment periods for the remedial investigation (RI), FSs and Proposed Plan. Public meetings were also announced in local newspapers and occasionally on the local radio station. Printed notices were large (at least 4 inches by 5 inches in size) and published in the Livingston Enterprise, a daily newspaper. Many of the meetings were also advertised in the Bozeman Chronicle and Billings Gazette.

1.1.2. Administrative Record

The Administrative Record is the set of documents upon which the selected remedy is based. The Administrative Record is required under section 113(k) of CERCLA and section 75-10-713, MCA, of CECRA. The complete Administrative Record, including all documents related to the site, is available for public review at the DEQ in Helena. A partial Administrative Record, including major documents related to the site, is available for public review at the Park County Public Library in Livingston.

1.1.3 Document Repositories

DEQ maintains document repositories at the following sites:

DEQ Remediation Division Hazardous Waste Site Cleanup Bureau 2209 Phoenix Avenue Helena, MT 59620-0901 Telephone: (406) 444-1420 (Complete AR)

Park County Public Library 228 West Callender Livingston, MT 59047 Telephone: (406) 222-0862 (Partial AR)

Repositories for major documents are at:

Montana State Library, Capitol Complex, Helena, MT 59620 Montana State University, Renne Library, Bozeman, MT 59715 University of Montana, Mansfield Library, Missoula, MT 59801

1.1.4 Citizens Groups

In November 1989, DEQ's project coordinator for the BN Livingston Shop Complex site began meeting with the Livingston Informed Friends of the Environment (LIFE) group in Livingston. LIFE was organized early on during the project and appointed by the Livingston city council to monitor the site and ensure citizens of Livingston that the State was providing adequate oversight and protecting public health and the environment. The DEQ project coordinator met regularly with the LIFE group to explain site-related issues, review project work plans and answer technical questions about the cleanup. Early in the project DEQ conducted site tours for LIFE and other concerned citizens. In June 1992 the LIFE group disbanded.

In April 1995 Park County Environmental Council (PCEC) obtained a \$50,000 EPA technical assistance grant to continue monitoring cleanup progress at the site. DEQ will continue to work with PCEC on technical issues related to the BN Livingston Shop Complex. DEQ will provide PCEC copies of all future draft and final work and design plans, schedules, and reports. DEQ will consider any information and comments PCEC provides prior to approving documents.

1.1.5 Progress Reports

To keep citizens updated about site activities, DEQ published regular progress reports from 1989 through 1992. These reports contained information on recently released documents, upcoming meetings, completion of projects, sampling results and other information. Progress reports were sent to individuals on the mailing list for the site, local newspapers and local radio stations. Progress reports will resume during remedial action.

1.1.6 Toll-free Hotline

DEQ maintains an in-state toll-free number (1-800-246-8198) for people who want to contact DEQ about the BN Livingston Shop Complex or other Superfund sites. DEQ Remediation Division staff direct calls to appropriate state project officers. The toll-free number is answered in person during business hours. In addition, DEQ maintains a website.

1.1.7 Mailing List

DEQ maintains a private mailing list that is periodically updated. DEQ has actively solicited additions to the mailing list in progress reports and at public meetings. In accordance with state law, the mailing list is generally not released to the public.

1.2 Chronology of Community Relations Activities

In the fall of 1988, DEQ personnel toured the site, met with local officials and conducted interviews with community residents. In May 1989 the Governor and the DEQ director visited the site, met with community leaders and conducted a public meeting. On June 22, 1989 another meeting was held to discuss private groundwater wells. On December 1, 1989, DEQ and BNSF held a public negotiating session about revisions to the Draft Partial Consent Decree. On December 7, 1989, DEQ held a public meeting to discuss revisions to the consent decree. A total of four public meetings and one public hearing were held in 1989. In 1991 DEQ published the Community Involvement Plan (DEQ, June 1991) to summarize community concerns and outline ways to address those concerns.

Many other public meetings have been held in Livingston to update the public about interim actions, describe health studies performed by the Agency for Toxic Substances and Disease Registry (ATSDR) and DEQ and discuss technical documents. Some of the meeting topics and dates were:

- a) Public Health Assessment by DEQ and the Agency for Toxic Substances and Disease Registry (ATSDR) on February 26, 1997,
- b) Presentation of findings from the basement gas study on May 13, 1993,
- c) Presentation of the Baseline Risk Assessment (BRA) and discussion about which homes are eligible for basement gas sampling on October 14, 1992,
- d) Public Hearing to present the Montana Pollutant Discharge Elimination System (MPDES) permit to treat contaminated water generated during interim and cleanup activities on November 15, 1991,
- e) RI presentation on November 6, 1991,
- f) Public site tour held on October 26, 1991,

- g) Public meeting to discuss ATSDR health studies on October 4, 1990, and
- h) Public meeting to discuss testing two methods to remove diesel fuel from the groundwater on April 30, 1990.

1.3 Explanation of Response Summary

All comments received, including those provided to DEQ after the comment period, have been reviewed and considered by DEQ in the decision making process and are addressed in this Response Summary. To assist in developing responses, DEQ added its own numbering to each comment. Each specific oral and written comment is stated verbatim. In order to avoid duplication of some responses, similar comments are usually addressed only once for the first occurrence of the comment and thereafter referenced to the appropriate response. Written comments and the public hearing transcript are part of the Administrative Record.

2.0 RESPONSES TO ORAL COMMENTS

2.1 Comments from Mr. Mike Doyle

Comment 1: Okay. My name is Mike Doyle, and I'm here as Mike Doyle. I'm a city commissioner, but I'm speaking on my own this evening. And I want to thank the State for its efforts in helping to take care of the situation here in Livingston. I want to thank the BN as well. As I hope that together with the city of Livingston, we can all work together in harmony and in trying to alleviate the problems that are here. There's three items I'd like to address, and that's prior to enacting the final solution or the chosen remedy, there are three areas that are potential health hazards for us, and I'd like to see something done about it while negotiating is going on with the BN and the State concerning some tougher issues, that being the diesel plume and how it's going to be removed. Number one is to fence and sign the cinder pile to prevent public access to the pile, which contains asbestos. Second is to remove and dispose of the treated contaminated soils under the old electric shop and the man way pit over there at the site. And thirdly, institute, reinstitute a basement gas sampling program in the private ground that is over there. In conclusion, I'd like to say that local representation should be a part of the discussions concerning the final consent decree with BN and with the State. That's all I have to say. Thank you very much.

Response 1:

Continued Interim Actions and Basement Gas Sampling - On July 1, 1999 DEQ approved BNSF's "Electric Shop Soil Excavation Final Work Plan Livingston Rail Yard" (dated June 28, 1999) to remove and treat contaminated soils from under the electric shop and transfer pit manways. The contaminated electric shop soils are currently being treated onsite with an ex-situ soil vapor extraction system. DEQ will also evaluate confirmation sampling results to determine if cleanup levels were achieved during the interim action for the areas covered by the plan. If not, DEQ will require remaining contaminated soils be treated by soil vapor extraction until cleanup levels are achieved. On December 16, 1998, the cinder pile was temporarily fenced,

which limited access. The Record of Decision (ROD) requires fencing, capping, and deed restrictions for remediation of the pile. As part of the final remedy, additional basement gas sampling will be conducted in several homes that previously had the highest levels of volatile organic compounds (VOCs). An approved work plan will incorporate new sampling methodologies for basement gas, which should provide better data. If sampling results indicate exceedances of EPA Region IX preliminary remediation goals for ambient air, then sampling will be expanded as appropriate and site-specific cleanup levels will be calculated for indoor air and, if necessary, appropriate mitigation measures will be implemented. It is not DEQ's intention to require this as an interim action.

Public Participation in Negotiations - DEQ confirms in Section 1.2, Chronology of Community Relations Activities that the original modified partial consent decree was the subject of four public meetings and a public hearing in 1989. The ROD is final and will not be subject to negotiations. It is DEQ's intent to waive confidentiality for the draft consent decree and scope of work given to BNSF as part of the special notice procedure. However, after that point, DEQ will maintain confidentiality during the consent decree negotiations with BNSF in order to better facilitate good faith negotiations. Should consent decree negotiations prove successful, section 75-10-713, MCA, provides for a thirty-day public comment period for a consent decree prior to its approval. In addition, the public will have the opportunity to review and comment on the scope of work that will be attached to the consent decree, and work plans and schedules that will be submitted during and after consent decree negotiations.

2.2 Comments from Steve Golnar, Livingston City Manager

<u>Comment 2:</u> I'd like to submit my testimony as written. I think that would be better than me reading the whole deal, and I've given that to her. Well, this is oral testimony. I understand we had the oral comments tonight. This is as far as the city has gotten in its thought process on this. And we'll be looking at possibly revising it in preparation for the final written comment period of November 22nd. Thank you.

Response 2: DEQ received final combined written comments from the city of Livingston and Park County and responds to them in Section 3.

Comments from Dave Cook, representing Montana Rail Link (MRL)

<u>Comment 3:</u> I'm representing Montana Rail Link for this public comment period, and we will be following up also with documentation and a written comment, also. MRL desires to continue its commitment to being environmentally pro-active and sensitive. As seen in this MDEQ manual, we appreciate the efforts of the State to putting together such a concise report.

We do have some health and safety concerns, though. MRL believes that we can have a railroad that operates without hurting people. We have undertaken a dramatic change in our safety culture with Montana Rail Link. I'd like to offer you some information. We have what we call a "casualty index ratio," which describes the amount of hours worked times 200,000 and divided by the men that have worked. And we have done remarkable reduction in our injuries on our

railroad. Starting in 1989, we had a casualty index ratio of 13.76, and it's steadily decreased every year until 1997 where we were 3.46. And as of today in 1998, we're 0.89.

During our safety meetings and safety audits that we have on our railroad, our people have consistently brought up our responsibility in reducing tripping hazards as well as reducing outside contractors' activity in and amongst our property. This proposal has more than 40 proposed wells to be considered in and amongst our rail yard. We have many physical obstacles such as electrical, gas, underground sanitary, underground industrial piping, signal wires for the communications department, communications such as telephone, and a contractor of Sprint throughout our rail complex. More importantly, our concerns are with the safety after construction during the collection process as presented in the addendum here, as outlined in this proposal.

And on an operating side, in 1995, within the company of Montana Rail Link we had 58 injuries of which 24 were in yard limits. In 1996, we had 68 injuries of which 22 were in yards. In 1997, we had 40 injuries, 21 of which were in yard limits. And in 1998, we've had 10, 4 of which have been in yard limits. So I hope you can see our concerns with any obstructions or activities amongst our yards.

In rail yards, all crafts such as operating, mechanical, Maintenance of Way are actively working amongst randomly moving trains, engines and free-moving cars. Movement can be made at any direction, at any time, in a tight working environment. Tracks are as close as 13 and a half feet from each other, center to center, which leaves only three and a half to four feet between cars on adjacent tracks.

Our employees work under company and federal regulations to ensure their safety. These rules are complex, and outside contractors are required to be accompanied by a Montana Rail Link flagman, which is certified on these work rules. We feel that our people would be subjected to unnecessary obstacles, such as in the wells and other additional activities to be concerned with, such as contractors in amongst the yard. Because of the uncertainty of the success of the fuel recovery portion of this proposal, we ask that the Phase I remain outside of tracks 1 through 14. We have 119 employees working and living in the community of Livingston. Help us keep those folks safe. Thank you.

Response 3:

Worker Safety - Worker health and safety concerns are of critical importance, as a large portion of the Livingston Shop Complex remains an active facility.

DEQ notes that MRL was awarded the 1998 Harriman Safety Award for Class C railroads. DEQ has considered the ongoing operation of MRL and Talgo-LRC, including health and safety issues, when formulating the phased diesel fuel recovery plan specified in the ROD. Similar to constructing freeways and highways, construction activities within an active rail yard must be performed with the highest concern for worker safety and protection. Using planning, coordination, train-spotters, radio communication and daily safety meetings will ensure the installation, maintenance and operation of the diesel fuel recovery system can occur safely.

To reduce worker risk during construction and operation and maintenance of Phase I free-product diesel recovery, recovery wells will be installed in areas of the railyard with reduced or no train traffic. Seventy percent of the recovery wells will be located in areas of the railyard where worker exposure and risk to train traffic is lowest. Sixteen diesel fuel recovery wells (36%) will be installed in the Park Street right-of-way where there is no train traffic. Fifteen recovery wells (34%) will be installed along abandoned track 4 where the working distance between active siding tracks is doubled (from 13.5 feet to 27.0 feet) and should provide adequate working space to safely install the recovery system. DEQ is confident the remaining 30% of Phase I diesel fuel recovery wells can be safely installed and operated while effectively recovering diesel fuel using similar methods that were employed during the construction and operation of Test Cell 4, as described below. In addition, some of these wells will be installed in the MRL tunnel area. If the MRL tunnel area is utilized during free product recovery, there will be less of a need to be in the active railyard. DEQ will also consider the ongoing operation of MRL and Talgo-LRC, including health and safety issues in the design and implementation of Phase II free-product diesel recovery.

Envirocon demonstrated that injuries to workers can be avoided during the installation of Test Cell 4. This system was installed and operated in summer and winter of 1991. By carefully coordinating work activities with MRL's Missoula and Livingston dispatchers, utilizing trainspotters and radio communications and holding daily safety meetings, Envirocon, Inc. (MRL's sister company) demonstrated that a multiple-well pilot-test diesel recovery system, (Test Cell 4), could be successfully constructed within active train tracks without worker injury. From approximately July 24, 1991 through September 24, 1991 Envirocon installed Test Cell 4. Test Cell 4 was a complex engineering project requiring close cooperation between MRL, LRC and Envirocon. It was constructed over a two-month period using rolling construction equipment, drill rigs and many workers. Large culverts and concrete vaults were installed between tracks and utility lines were buried parallel to and under tracks. The system was operated and maintained by Envirocon workers from September 24, 1991 through November 22, 1991 and December 18, 1991 through January 18, 1992. This system did not operate after January 18, 1992 because of biofouling problems with the reinjection wells.

DEQ understands tripping hazards within active railyards are an important concern. During installation and construction of Test Cell 4, man ways to contain recovery equipment and utilities, such as electricity, water lines, product (diesel fuel) recovery lines, air lines and other necessary equipment, were flush mounted or buried to prevent trip hazards. DEQ will require Phase I and II incorporate similar techniques.

One of the reasons DEQ dedicated Phase I recovery wells along track 4 is because the south portion of Test Cell 4 is located there and, with very little modification, existing man ways and utility lines can be extended and utilized for Phase I recovery wells. Utilizing existing automated Test Cell 4 recovery equipment and utility lines would reduce the amount of time workers spend installing wells within track 4 area and would also reduce the amount of time workers spend within track 4 during operation and maintenance efforts. In addition, DEQ also located Phase I recovery wells in the tunnel. DEQ believes workers can safely conduct recovery efforts within the tunnel, thereby limiting the amount of time workers would spend in the railyard during operation and maintenance of Phase I.

DEQ understands operating, mechanical and maintenance-of-way craft personnel work within active rail road tracks under strict safety controls with few injuries. DEQ will require BNSF and its contractor, Envirocon, Inc., to coordinate with MRL and Talgo-LRC to identify safety protocols MRL and Talgo-LRC use to protect workers while working amongst active rail tracks. A specific safety workplan for active operations will be prepared as part of the remedial design. DEQ will require construction personnel installing and operating the diesel recovery system to follow the same strict safety rules and training that railyard workers follow.

Comments from Art Middlestadt

<u>Comment 4:</u> My name is Art Middlestadt. I'm currently a resident of Cheyenne, Wyoming. However, I'm a landowner in Montana and a past resident and future resident also, God willing. And I've been working in the groundwater remediation business for a long time, both here and Wyoming. I worked with the Montana Bureau of Mines for about eight years, and then we moved down to Wyoming to start up an office down there.

But my concern is the expense and the lack, or at least the potential lack, of result on picking up the contaminants that you have here. In my experience -- and it's just my own personal experience -- vapor extraction systems and bioventing systems and air sparging do not work well in diesel because it's a heavier hydrocarbon. It works well in gasolines. This way they can volatilize easily, but diesel, especially on a shallow groundwater table, tends to go down, and I guess you'd call it, attach itself or it works right on the groundwater level working with a floating groundwater.

And the technology we found works well and is basically being accepted world-wide now is using a, I can't think of the name. I'm getting tongue-tied here. Surfactant, enhanced aquifer remediation. What it does, the surfactant will go down and break the bond between the groundwater and the hydrocarbons that are both above and below the groundwater level. And in doing so, it releases that bond, and then it also encapsulates the hydrocarbons so they don't reattach and reform this bond with changing water levels. And you can either flush them out or actually you can extract them with a vacuum setup with the wells that you have, I understand, in place already. You actually flush the surfactant down and then suck it back up, and in other studies we've had -- I do quite a bit of work with the military -- we've had as high as 99 percent recovery of spills and stuff that have gone down and actually attached themselves in the soil.

And I feel that with all the work that we have done, I have put in probably oh, 30 or 40 of these soil vapor extraction systems and air sparging systems, and on diesel, they're very ineffective. You get a very minimal amount of recovery or -- if you can break that bond first, I think it's a better deal.

And again, I want to be back here in Montana. I want to see the public money used the best way it can be. And if you can do something for a million dollars instead of 10 million dollars, it makes sense to do it or at least to look at it. That's all I have.

Response 4:

Surfactants as a Cleanup Alternative - The Proposed Plan and ROD does not set forth vapor extraction, bioventing and air sparging as technologies evaluated in Phase I to remove diesel fuel from groundwater. Passive recovery of diesel fuel from groundwater using belts, pumps, canisters or other efficient technologies will be used to remove diesel fuel until 1/8 inch or less of free product remains throughout the plume. Subsequently, bioventing will be employed to enhance biodegradation of residual diesel fuel adsorbed to soil. Bioventing will not volitize and remove the heavier end diesel fuel directly. Air sparging is not proposed to remove or recover diesel fuel from groundwater or soil.

DEQ (and BNSF) listened to a presentation by Mr. Middlestadt for the surfactant chemical. The use of surfactants to recover diesel fuel was eliminated early in the preliminary technology evaluation of the feasibility study process because of the delivery problem. The biggest challenge of adding sufactants to an aquifer and vadose zone is delivering and dispersing the material in the aquifer and subsurface soil. To deliver and disperse a surfactant at the BN Livingston Shop Complex, DEQ has calculated delivery wells would need to be installed on 20-foot centers, which would significantly add to the cost without tangible benefit. DEQ does not believe there is enough data to demonstrate that surfactants should replace or be added to the selected remedy.

All cleanup options presented in the FS were evaluated using the CECRA criteria, including cost effectiveness. CECRA requires costs be borne by potentially liable persons rather than public funds. As set forth in the consent decree, DEQ will enter into good faith negotiations with BNSF to implement the selected remedy. If negotiations are not successful, DEQ will order the remedy to be implemented. Neither of these options requires the public to bear the costs.

2.5 Comments from Rebecca Weed, representing Park County Environmental Council (PCEC)

<u>Comment 5:</u> Rebecca Weed. 13,000 Springhill Road, Belgrade, Montana. I work with RTI, the technical advisor to PCEC. I just have a couple of brief remarks. First of all, I'd like to reiterate the emphasis that I think that interim actions on a few items which BN and the State can agree on could be very important and useful and shouldn't be delayed by the other issues, which are under dispute.

Secondly, I'm somewhat concerned that there are members of the public who still aren't clear that even if a remediation is carried out, there's still going to be residual diesel products. And I don't want there to be a rude awakening a few years down the road when people realize that, basically, we won't be able to remove all of the free product. That's just a general comment. It doesn't have any bearing on the actual feasibility study document.

And the principal item of dispute between the State and BN involves what should be done to clean up the free product, and it hinges on two real issues. One is the disagreement about what's the thickness of the remaining product? And two, what's the actual hazard to workers if there are going to be wells drilled in the center of the plume?

And I think that it might be possible to clarify -- some of that dispute, there are still some remaining holes in the data and the latest groundwater sampling report by BN regarding the thickness of the remaining plume. And I think that PCEC -- the Park County Environmental Council -- we want to repeat our concern that as much be done as possible, but that we recognize there may be technical limitations to what can be done, and if, in fact, the free product is thin enough that we can't practically recover it, we're willing to recognize that right now, there's disagreement about what the thickness of that product is.

Response 5:

Please refer to Response #1 regarding continued interim actions and Response #3 regarding worker safety.

Free Product Recovery - Free product or mobile non-aqueous phase liquid (NAPL) recovery to the "maximum extent practicable" is a federal mandate specified in the Resource Conversation and Recovery Act (RCRA) Subtitle C (Underground Storage Tank regulations). The application of that law to this site is both appropriate and consistent with DEQ's requirements at other diesel fuel release sites in Montana. A large amount of recoverable diesel fuel is present at the site and meets criteria for "active free product recovery" specified in the September 1996, EPA Publication, "How to Effectively Recover Free Product at Leaking Underground Storage Tank Sites." These criteria, specified on page II-9 and II-10, are as follows:

"Factors which suggest a need for free product recovery include:

- Estimates of free product at the water table that are moderate to high (greater than 200 gallons)
- Permeable aquifer (e.g., sands and gravels) or hydraulic conductivity greater than 10⁻³cm/sec.
- Thick accumulations of free product in wells (greater than 1.0 foot).
- Nearby surface water or groundwater use (e.g., close proximity to receptors)..."

The main free product plume area at the BN Livingston Shop Complex site meets at least three of the four criteria for consideration of free product recovery.

DEQ agrees it is important for the public to understand that reasonable environmental industry standards project 20% to 50% diesel fuel recovery rates based on soil type and weathering. DEQ advocates taking an active approach to free product recovery by implementing free product (or NAPL) recovery techniques commonly used in the environmental remediation industry. These techniques often recover up to 50% of the available diesel free product at cleanup projects. Although diesel fuel recovery will not remove 100% of the free product, DEQ considers it is important to remove as much free product from above the groundwater and saturated zone as possible to allow air to flow through soil pore spaces. Allowing air and oxygen into soil spaces, which previously contained diesel fuel, will enhance biodegradation of the remaining residual NAPL once bioventing is employed. Utilizing bioventing without free product recovery will significantly extend the time it takes to cleanup diesel fuel. The selected remedy requires

removal of all the diesel fuel to cleanup levels. The unrecoverable diesel will need to be destroyed by natural microbial processes over several decades. The time to achieve cleanup levels is drastically reduced by removing as much of the free product as practicable during the early phases of this project. For more discussion of biodegradation versus free product recovery, see Response #7.

"Intuitively, the most effective locations for free product recovery devices are those places where the accumulations are the greatest." *How to Effectively Recover Free Product At Leaking Underground Storage Tank Sites: A Guide for State Regulators.* (EPA 510-R-96-001). September 1996. P. IV-1. Phase I allows DEQ to seek the most cost-effective way to meet protection of human health and the environment and comply with environmental requirements, criteria and limitations (ERCLs) while providing minimum impact to on-going operations.

The difference in BNSF's and DEQ's interpretations of existing apparent hydrocarbon thickness seems insignificant when compared with the lack of available data in large areas of the plume. One important objective of the Phase I recovery system is to obtain additional free product thickness data, especially in the center of the diesel plume, to fill those gaps. Product thickness data interpretation will help define areas in which free product recovery is practical. The thickness of a free product layer in a well is a function of well construction, hydrocarbon saturation and other factors. During Phase I hydrocarbon recovery, DEQ intends to optimize well construction and place wells in areas where recoverable amounts of free product exist.

The issue of product thickness will affect the remedy during design and evaluation of Phases I and II. DEQ has relied on Envirocon's free product thickness data for estimated thicknesses of diesel fuel. It is important to note that contour lines on Figure 3.0 in the Final Draft Hydrocarbon FS Report are based on product thickness information from wells surrounding the center of the plume. DEQ expects product thicknesses in this area to be reasonably accurate. However, data indicates that free product is somewhat discontinuous along Park Street. Some previous feasibility tests conducted to determine free product recovery rates (especially Test Cells 3 and 4) required significant draw down of the water tables, and contributed to "smearing" free product vertically into lower parts of the aquifer in these test areas. It is thought that once the water table recovers to its pre-draw down conditions, smeared free product may remain trapped within the aquifer media below the water table. If this has happened this trapped free product would not readily flow into monitoring wells where it can be measured. This may account for the discontinuous nature of free product measured in monitoring wells along Park Street.

There is a regulatory obligation to remove free product to the maximum extent practicable. Complete recovery should not be expected and is not practical at any hydrocarbon recovery site. The ROD requires that the performance of the Phase I recovery system will be evaluated after two to three years of operation. At that time the recovery system will be evaluated with the objective of optimizing recovery rates site-wide. This evaluation will help determine how to proceed with future recovery efforts.

Many free product systems can remove up to 0.01 foot or less (EPA, September 1996). However, DEQ recognizes that the success of free product recovery may be based on many different variables. DEQ's experience at numerous leaking underground storage tank sites in

Montana is that the design and installation of a free product recovery system is a critical factor in successfully removing free product from the water table. With the proper design and system installation, DEQ believes a considerable amount of free product can be recovered and cleanup standards met.

DEQ recognizes that it is not technically feasible to recover 100% of the product at this site or at any petroleum release site. However, removal is required to the maximum extent practicable. DEQ representatives have discussed this fact at previous public meetings for the BNSF Livingston Shop Complex. Existing monitoring wells at the site indicate it is appropriate to implement free product recovery at this time.

2.6 Comments from Robin Billau, representing Park County Environmental Council

<u>Comment 6:</u> I live at 174 Quinn Creek Road, Bozeman. I'm representing Park County Environmental Council, and the comments that I want to make on the proposed plan is, first of all, PCEC generically agrees with the State's proposed plan for both the soil and the groundwater and the diesel fuel. We are concerned about the timing, though, and we would like to request that the State consider interim actions that would occur prior to the Record of Decision being finalized.

Just as Mike Doyle iterated before, we believe that there are several items that are going -- that are most protective of the public that need to be done as soon as possible. First of all is to fence and sign the cinder pile to prevent public access to the pile; to remove and treat or dispose of contaminated soils under the electric shop and the transfer man way pit, which may continue to be a source of pollution to the underlying groundwater. Institute a basement gas sampling program for those homes that were indicated in the proposed plan. And continue with private or institute private groundwater well sampling as indicated in the plan.

PCEC would like to request along with the Livingston City and County that we be part of any negotiations that the State may have with Burlington Northern. We are particularly concerned about scheduling and time commitments, recognizing that, in fact, the diesel fuel part of this cleanup is going to be the most controversial, and we're concerned, one, that the data that's received will indicate truly -- we want, let me rephrase that.

Just as Becky said, we're concerned that the technologies that are going to be utilized, we don't want the public to think that this is going to recover a hundred percent whatever is there. We're concerned that there may not be enough data to fully appreciate exactly the extent of the contamination. We recognize, though, that this is the part of the plan that's going to take the longest time.

So our request to be part of the negotiations would be to establish a schedule and establish, hopefully negotiate changes to the modified consent decree that then would allow this particular part of the plan to go with community knowledge and with community oversight.

We'd also like to comment on the fact that we are not happy with the ATSDR's efforts as far as their health assessment. We don't believe that the final study actually did anything to alleviate Livingston's citizens' concerns, and we would like to ask the State that they consider additional State resources when trying to remediate both Mission Wye and the railyard activities so there isn't a conflict there. One doesn't take precedence over the other. Additional comments that we have we'll put in writing, but those are the major concerns that the PCEC has.

Response 6: Please refer to Response #1 regarding continued interim actions and public participation in negotiations; and Response #5 regarding free product recovery.

Continued Interim Actions - BNSF sampled three private wells in October 1998 and seven private wells in September 1999 east of the Yellowstone River. Groundwater from two of the private wells contained tetrachloroethene (PCE) at levels below EPA's maximum contaminant level (MCL) for drinking water. In the ROD, DEQ requires that the well inventory be updated and any domestic use well located within the contaminated groundwater plume be monitored on a regular basis. If contaminant concentrations are approaching or exceed EPA's maximum contaminant levels for drinking water, then alternate water (which typically means connection to municipal water) will be provided to the residence at no cost to the well owner.

ATSDR's Health Assessment - After receipt of the comment, DEQ forwarded a complete copy of PCEC's oral comments to ATSDR. These comments were sent to Max M. Howie, Jr., Chief, Program Evaluation, Records, and Information Services Branch, Division of Health Assessment and Consultation, ATSDR, 1600 Clifton Road (E-56), Atlanta, GA 30333 and Danelle Langman at the same address. A copy of PCEC's comments were also forwarded to the ATSDR/EPA liaison, Glenn Tucker, ATSDR Region 8, 999-18th St., Suite 500, Denver, CO 80202. DEQ requested that ATSDR respond to the specific health issues PCEC included in their comments on ATSDR's Public Health Assessment.

In response, ATSDR held a presentation in October 1999 at the Livingston Memorial Hospital that was attended by more than 25 health care professionals. The presentation provided a history of the site, the opportunity for discussion of past and potential exposures, and a description of potential health effects. ATSDR also issued a fact sheet in February 2000 to better explain the results of its Public Health Assessment. The fact sheet encouraged residents to contact Gail Williams with ATSDR at 1-888-42ATSDR for more information.

Additional State Resources for the Facility - DEQ is experiencing significant staff turnover and recruitment difficulties. Often times DEQ must shift limited resources within the section to respond to more immediate risks to citizens across the state. The BN Livingston Shop Complex is a maximum priority CECRA facility. Mandy Cunningham is the current project officer and is focusing her efforts on the BN Livingston Shop Complex and Mission Wye facilities. While DEQ appreciates the commenter's desire for cleanup to occur more quickly, DEQ will not assign additional technical staff to the project given our current resource constraints.

2.7 Comments made by John Mills representing The Burlington Northern and Santa Fe Railway Company

<u>Comment 7:</u> My address is P.O. Box 6403, Bozeman, MT 59771. I'm a consultant to Envirocon who is a contractor to Burlington Northern. My comments are for Burlington Northern. The Burlington Northern Santa Fe Railway Company has been working on this project for ten years, and they are proud of the fact that more than 80 percent of all the remedial work that will be done has already been completed at this site. The final work that remains is what is contained in the proposed plan.

BNSF, in general, agrees with DEQ's proposed plan. We're now finishing work plans to implement portions of the proposed plan in advance of the Record of Decision if allowed to do so by the State. And those generally coincide with what the city would like to see get done in advance.

The chlorinated VOC plume which posed the only really significant potential health risk at this site has declined in concentration more than 90 percent since the early 1990s, due to remedial actions implemented by BN in the early 1990s. And this concentration decline is the reason why no further significant remedial actions are contained in the proposed plan for the VOC plume.

BNSF has removed asbestos, regraded and revegetated most parts of the cinder pile, and based on air sampling, BNSF does not believe that the cinder pile poses any measurable health risk. Regardless of this, BNSF agrees to install another fence to prevent trespassing on the cinder pile and will work with DEQ on a final solution for the cinder pile, in addition to fencing.

The diesel fuel plume is the only remaining issue on the railyard that does not have a straightforward solution. Although this plume covers a large area, it contains only a thin and discontinuous layer of free, liquid diesel fuel, and the great majority of the diesel fuel in the plume is held as residual product in the soil and not as a free liquid. And this is, in fact, why it does not have a straightforward solution.

Based on the results of six previous free product recovery efforts, the BNSF does not anticipate that the free product recovery efforts described in the proposed plan will be easy or efficient. Recovering diesel fuel effectively has been a common problem throughout the country. However, BNSF agrees to proceed with further efforts to this end.

One specific area that BNSF does not agree to work on is in the old tunnel underlying the tracks, as suggested in the proposed plan. Confined space work is one of the most common sources, causes of employee injury and death, and BNSF does not agree to force remediation workers to repeatedly enter confined space, particularly one that has open wells and potentially hydrocarbon vapors in the subsurface.

Based on the thinning and shrinking of the diesel plume that has been measured over the last 10 years, and also based on biodegradation measurements over the last two years, it is clear that the diesel plume has been and will continue to biodegrade naturally. Regardless of the nature of free product recovery efforts that we will undertake, BNSF expects natural biodegradation, and the oxygen-enhanced biodegradation described in the proposed plan is to remove far more diesel fuel from the subsurface than direct free liquid recovery will ever recover. And that's it.

Response 7:

Quantity of Work Completed - DEQ agrees the eleven interim actions have significantly reduced public health risks and environmental threats that were present in 1989; however, it is difficult to quantify and evaluate the amount of work completed in the past and compare it to the quantity of work needed in the future. Past completed activities are set forth in section VI of the ROD; they include removing sources of VOC contamination, underground storage tanks and associated distribution lines, visibly contaminated soil, and sludge. Future activities will focus less on these areas and remediate the remaining contaminated media, including NAPL recovery, to bring the site into compliance with cleanup levels and ERCLs.

Free product thicknesses indicate that a significant amount of work must still be completed. It is difficult to predict the work effort required to complete this task until the Phase I diesel fuel analysis is complete. DEQ is not comfortable stating that 80% of the work necessary to cleanup the site has been completed.

Chlorinated VOC Plume - In addition to the risks posed by the chlorinated VOC plume, the risk assessment also identifies an unacceptable risk to on-site workers from PAH contamination in surficial soils. DEQ has also identified asbestos in the cinder pile as a potential risk to on-site workers and off-site residents (see additional comment below). Petroleum contamination in soil and groundwater also poses a potential risk to on-site workers and off-site residents should petroleum constituents exceed standards in groundwater (see Response #61). DEQ is not requiring active groundwater treatment of VOCs at this time because nine years of data shows a significant decline in groundwater VOC concentrations. DEQ expects that trend to continue with natural attenuation of the contaminants. However, the ROD provides a contingency for localized pump and treat of VOC contaminated groundwater if it appears that natural attenuation will not achieve groundwater cleanup levels in a reasonable time frame.

Cinder Pile - The commenter indicated BNSF's willingness to conduct additional interim actions. BNSF installed the temporary fence around the cinder pile on December 16, 1998 and removed contaminated soils from the electric shop in the Fall of 1999.

Asbestos is a name usually applied to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite). It is a mineral made up of long, thin fibers that appear somewhat similar to fiberglass. Asbestos fibers are very strong and resistant to heat and chemicals. Since the fibers are so resistant, they are also very stable in the environment. They do not evaporate into air or dissolve in water; however, pieces of fibers can enter the air and water from the weathering of natural deposits and the wearing down of man-made asbestos products. Asbestos is a proven carcinogen that causes lung cancer and mesothelioma. (Toxicological Profile for Asbestos, ATSDR December 1995).

DEQ, along with the city of Livingston and Park County, are concerned about asbestos at the cinder pile. Although asbestos was not detected in soil during the RI surficial soil investigation and in the air during ambient air sampling (and therefore not evaluated in the risk assessment), DEQ identified asbestos in waste products collected on the pile in 1991. Waste asbestos from the asbestos processing room in the shop complex was reportedly disposed of at the cinder pile. BNSF removed asbestos from the surface of the pile in 1991, but wind continues to erode cinders

and uncover more asbestos. DEQ evaluated data from Montana's Department of Transportation Maintenance Division road weather informational system for Livingston between January 1999 and July 2001. The average monthly wind gust is approximately 92 miles per hour (mph); the maximum average monthly wind gust is 138 mph and the minimum average monthly wind gust is 66 mph. Therefore, DEQ believes the asbestos does pose a potential health risk. To provide long-term protection of public health for potential exposure to asbestos, the ROD requires that the cinder pile be capped with 18 inches of clean fill and 6 inches of topsoil over the entire pile that will be successfully revegetated. Some regrading may be necessary. In addition, the cinder pile will be fenced and signed to restrict access and deed restrictions will be applied in order to maintain the integrity of the cap.

Free-product Recovery - DEQ believes all remaining issues at the railyard are important, including diesel fuel. Based on Envirocon, Inc.'s product thickness contour maps, DEQ disagrees the diesel plume only contains a thin, discontinuous layer of free, liquid diesel fuel. Figure 3.0 from the Primary Hydrocarbon FS (Envirocon, January 1998) shows free product thicknesses greater than 1.0 feet in a large area in the center of the plume. This information is based on data obtained during the RI and BNSF has not provided any new data since that time which would contradict existing product thicknesses.

BNSF has not adequately characterized the diesel fuel plume because no free product thickness data exists for the center of the plume. Diesel fuel recovery and obtaining accurate free product thickness data are important objectives of the Phase I diesel fuel recovery system specified in the ROD. Additional product thickness data is needed within the center of the plume to develop a comprehensive and cost-effective Phase II free product recovery program. Without this data, estimates of the amount of available free product and the specific length of time required for residual free product to biodegrade are unquantifiable. DEQ agrees with BNSF that a large amount of diesel fuel is adsorbed to soil within the aquifer and vadose zone.

DEQ agrees that diesel fuel recovery is not simple; however, DEQ understands BNSF and other railroad companies have developed creative, innovative and cost-effective diesel fuel recovery systems that have operated effectively in other states. Conventional diesel fuel recovery systems, such as those using belt skimmers, have been successfully installed and are currently operating at other BN sites in Montana. Dividing diesel fuel recovery efforts into two phases will allow for the development of efficient and cost-effective recovery systems.

Biodegradation versus Free-product Recovery - DEQ agrees that biodegradation is an important process contributing to diesel fuel volume reduction but disagrees with BNSF's interpretation that free product recovery efforts are unimportant when considering a total program to remove, degrade or recover diesel fuel. DEQ has researched the literature and EPA guidance and spoken to many experts about diesel fuel remediation efforts and has determined source removal is absolutely critical to effective long-term cleanup efforts. Removing the source will significantly shorten the cleanup time and will eventually increase biodegradation of remaining residual diesel fuel that may be unrecoverable with conventional free product recovery technologies.

In previous discussions, Envirocon argued seasonal groundwater fluctuation spreads free product each season within the smear zone making it available to biodegradation. DEQ disagrees with this speculation and insists, except for a limited time of the year when some downward drainage of diesel fuel occurs soil pores within the smear zone are probably saturated with diesel fuel and contain very little oxygen. Diesel fuel may anaerobically degrade very slowly under these conditions. Consequently, to obtain the greatest benefit from biodegradation, it is critical to remove the remaining source to the maximum extent practicable and then stimulate or enhance biodegradation by adding oxygen. DEQ has performed some cursory biodegradation calculations for free product without source removal and estimated it would take at least 100 years for current estimated free product levels to biodegrade under anaerobic conditions.

MRL Tunnel - In the proposed plan, DEQ identified that recovery would occur along the MRL tunnel and it would be appropriate to consider if the tunnel could be used as a utility corridor for product recovery equipment. In addition, well recovery operations in the tunnel allow for ongoing railyard activities to continue unencumbered. The ROD provides for some flexibility in well placement. However, because the tunnel is believed to be in a location where free product is expected to be thickest, a row of wells will be installed perpendicular to the tracks in the immediate area of the tunnel as indicated in the ROD. With the proper training, investigation and safety procedures, work can occur safely in confined spaces. BNSF expressed concern that petroleum vapors could accumulate in the tunnel. The Occupational Safety & Health Administration allows mitigation measures (such as ventilation) to be implemented to provide a safe working environment. This issue will be required to be adequately addressed in an appropriate health and safety plan.

2.8 Comments from Warren McGee

Comment 8: Warren McGee, 427 South Eighth, Livingston, past chairman of the LIFE committee, a resident of this community all my life, a descendent of people who have lived here since 1880 when the town was only seven years old. And I'd like to say I have a written statement here to give to you, but I don't appreciate the cavalier attitude of Burlington Northern SF that this -- they're doing the best they can. They got to do a hell of a lot better than this. This town I want to return to its pristine environment. And I won't be satisfied with anything less, and I may be dead, but there'll be people to follow. And I don't -- I just don't see, you're so damned smart, you don't really realize what you done to this country. That should be enough.

Response 8: DEQ appreciates the commenter's desire for BNSF to return Livingston to its former pristine environment. Under CECRA, DEQ may address releases or potential releases of hazardous substances that pose a risk to human health or the environment or that don't comply with ERCLs. The remedy for the BN Livingston Shop Complex contained in the ROD will obtain groundwater and soil cleanup levels that are protective of human health and the environment and that meet ERCLs. However, DEQ does not have the authority to require cleanup to a facility's original pristine condition. The natural resource trustees for Montana will determine if a Natural Resource Damage claim (which seeks compensation for environmental damage to state resources) will be pursued.

2.9 Comments from Korkalo representing LRC

<u>Comment 9:</u> Roy Korkalo. Livingston Rebuild Center. P.O. Box 992, Livingston. Livingston has been growing its business for ten years, and during that 10 years, we have had close association with the State, BN and BN's agents. We tried to cooperate during that time and think that the BN, the State and its agents have done an outstanding job in the cleanup this far. We stand ready to do our part, even at our own expense in helping the cleanup continue, with whatever decision the State and the BN arrive at.

Response 9: DEQ appreciates Livingston Rebuild Center's past cooperation and looks forward to continued cooperation as final cleanup progresses.

3.0 RESPONSES TO WRITTEN COMMENTS

3.1 Comments from PCEC

<u>Comment 10:</u> This letter is written to provide the DEQ with written comments regarding the referenced Proposed Plan. We are particularly concerned with the timing of the CECRA process and request that the DEQ and BN move ahead on the activities discussed below. It is not in the best interests of the community to wait the undoubtedly lengthy period required by the CECRA process to finalize the Record of Decision and then wait for negotiations to occur via the mandate of the current consent decree as follows:

"following selection [of the remedy] parties will enter good faith negotiations to modify the Modified Partial Consent Decree or enter into a new consent decree to provide for implementation of the remedy."

This requirement will further delay action at the site as the negotiations are likely to take many months and another document, the Remedial Design/Remedial Action Plan, is the next required planning document after the Record of Decision prior to beginning field work. Since two field seasons have already passed without any cleanup work being started, the Park County Environmental Council (PCEC) wants the following started in the priority listed below:

• PCEC wants those activities most protective of public health and the environment to be completed as interim actions rather than waiting for the lengthy negotiation/planning process. Those activities are: 1) fence and sign the cinder pile to prevent public access to the pile which contains asbestos, temporarily cover pile to assure asbestos doesn't become airborne. We are aware that DEQ has written a letter to BN requesting action to sign and fence by November 1, 1998 and we expect a status of that action and recommend a local news release accordingly to inform the community of the status. 2) remove and treat/dispose of contaminated soils under the electric shop and at the transfer man way pit which may continue to pollute the underlying groundwater; 3) institute the basement gas sampling program and private groundwater well sampling and analysis.

Response 10: Please refer to Response #1 and Response #6 regarding continued interim actions.

In response to public comment, DEQ met with Scott Murphy from the Livingston Enterprise and a picture and article about the cinder pile appeared in the Livingston Enterprise on January 13, 1999. The temporary fence around the cinder pile was installed by BNSF on December 16, 1998. The ROD requires that the cinder pile be fenced, capped and revegetated; the public will have the opportunity to provide input on the schedule for completion of this activity. BNSF removed contaminated soils from the electric shop in the Fall of 1999 and sampled three private groundwater wells in 1998 and seven private groundwater wells in 1999.

As set forth in Section XII of the ROD, the selected remedy calls for an expanded well use survey and revisiting of basement gas interim actions.

<u>Comment 11:</u> The Livingston City/County and PCEC expect to be a part of any follow on negotiations to assure that a schedule and work plan detail what needs to be done in a timely and accountable manner.

Response 11: Please refer to Response #1 regarding public participation in negotiations.

<u>Comment 12:</u> PCEC is concerned about commitments made during a visit to Livingston of several personnel from ATSDR. The community education promised by the ATSDR did not happen and prior meetings with Livingston citizens and this agency implied that actions would be taken that were poorly addressed in the final Health Assessment.

Response 12: Please refer to Response #6 regarding the ATSDR's Health Assessment.

<u>Comment 13:</u> PCEC is also concerned that DEQ is not applying sufficient resources to address both Mission Wye and the BN railyard activities. In the past couple of years Mission Wye has appeared to take precedent over the railyard. Both sites require attention and actions at either site should not be dependent on availability of state resources.

Response 13: Please refer to Response #6 regarding additional state resources for the facility.

Comment 14: The Proposed Remedy for Diesel Fuel will be the most controversial in that the technologies for cleaning up diesel fuel aren't efficient, are quite costly and take a long time. However, the state law requires the cleanup of diesel fuel and the DEQ proposed remedy is to perform passive recovery via wells used to collect diesel fuel and to install bioventing wells to get oxygen to contaminated soil for biodegradation. Attachment 1 reflects PCEC's concerns regarding the diesel fuel proposed remedy as expressed by our TAG Technical Advisor. We appreciate the opportunity to comment on this document and look forward to the continuing work at the Railyard.

Response 14: DEQ will respond to specific comments in Attachment 1 below.

Comment 15:

Attachment 1

Resource Technologies, Inc.: Comments on the Proposed Remedy and Associated Feasibility
Studies for the Livingston Railyard

The Feasibility Study (FS) Reports are, in general, acceptable presentations of the various alternatives that have been considered for remediation at the Livingston Railyard (LRY). The comments focus on the selection and timing.

For the soil and groundwater, RTI concurs with the MDEQ that the remedy should include excavation of contaminated soil from beneath the electric shop and around the transfer pit man way. The excavated soils would be treated to cleanup levels. The FS Report expressed some concern about the risks during execution of these steps, but we believe that these are not severe enough to justify elimination of this source removal strategy.

Response 15: In general DEQ agrees that the FS documents provide sufficient information to select the remedy. DEQ recognizes PCEC's concurrence with the proposed plan to excavate and treat the known remaining contaminated soil from the electric shop and transfer pit manway. Risks to construction workers will not be any greater than other construction activities completed at the BN Livingston Shop Complex site and other Superfund sites containing hazardous materials. BNSF and any contractor will be expected to develop and follow the appropriate health and safety plan for the site. This portion of the remedy is ongoing as an interim action. Please refer to Response #1 regarding continuation of interim actions.

<u>Comment 16</u>: This remedy would include recontouring, recapping, and revegetation of the cinder pile. We share the concern expressed by others that this component of the remedy take place as soon as seasonal conditions allow, as an interim action if need be. Fencing is a useful temporary measure, but does not provide a definitive solution to potential airborne hazards. We recognize that not all portions of the cinder pile are necessarily hazardous, but it would be more efficient and more acceptable to the public, to recap the entire pile rather than attempt to identify and segregate portions of the pile.

Response 16: Temporary fencing was installed around the cinder pile until a permanent cap is installed. The ROD requires recontouring, capping and revegetation of the entire cinder pile; the public will have the opportunity to provide input on the schedule for completion of this activity. BNSF indicated it would submit a work plan for the cinder pile; however, DEQ has not received one to date. More recent discussions with BNSF indicate that it will not submit a work plan for the cinder pile until after the ROD is issued. Please refer to Response #7 for more information regarding the cinder pile.

<u>Comment 17:</u> Probably the most controversial aspect of the FS Reports is that dealing with the diesel free product on the water table. To be blunt, I see a dilemma. There is a regulatory obligation to remove remaining free product "to the maximum practical extent" compelled by the realization that biodegradation takes place at the residual and dissolved-phase edges of free product, not in the heart of a free product plume itself. (Although there are no monitoring wells

in the heart of the plume, the data suggest that the free product could be quite thick in the zone where the MDEQ has proposed installing a network of recovery wells.) Furthermore, there could also be regulatory reluctance to risk sending a message to either the public or the corporate community that anyone thinks, "Oh well, the stuff is down there, and its hard to get it out, so I guess we'll just leave it." I am sympathetic with such a regulatory concern.

On the other hand, the prospect of attempting to remove the remaining free product is not entirely satisfactory. The proposed network of recovery wells necessarily will involve drilling in the tracked area of the active railyard. Although it is impossible to quantify the risk of performing such work, one must be convinced that the benefits are worth a risk before recommending that workers be put in that position. The present diesel plume is neither spreading nor generating mobile dissolved contaminants, and the local groundwater is not being used for human consumption, so the plume is not currently posing a human health risk. Much of the area of the original plume now exhibits thinned and even discontinuous free product. Even if the recovery wells perform as hoped, both the MDEQ and BNSF recognize that technology cannot remove all the diesel from the aquifer. A thin layer of product will remain on the water table, and residual diesel will remain in the pore spaces of the aquifer and overlying unsaturated zone. It appears likely that the well network would be able to recover only a fraction of the total remaining diesel. Thus we will ultimately be dependent on natural biodegradation for the final cleanup, and current groundwater chemistry data indicate that biodegradation is indeed active in the vicinity of the plume. Even if the final conclusion is that recovery wells do make sense, I want the public to be acutely aware of this reality of the messy natural system, rather than have a rude awakening at the end of a multi-year cleanup program when they realize that much (probably most) of the diesel that remained in 1998 is still in the aquifer. It is not unique for a groundwater scientist to recommend that natural biodegradation (± enhancement by addition of nutrients) be the final remedy for hydrocarbon contamination, rather than aggressive technological procedures.

Response 17: Section 75-10-721, MCA, requires DEQ to select a remedy that will attain a degree of cleanup that is protective of public health, safety, welfare and of the environment. Based on RI data, dissolved phase diesel fuel or total petroleum hydrocarbons (TPH) impact

Some technologies are available for removing residual hydrocarbons in some circumstances, e.g. the use of surfactants, but I am not convinced that there are workable safe options for the LRY. Problems involving undesirable mobilization of contaminants (especially in a productive aquifer such as under the LRY) and/or incomplete penetration of surfactants can plague these alternatives. My understanding is that BNSF and MDEQ have not been convinced that these technologies would be applicable at LRY.

groundwater by migrating from free product diesel fuel to groundwater. Dissolved phase diesel fuel was not evaluated and the risk was not quantified in the BRA because cancer slope factors were not available for TPH when the assessment was performed. However, DEQ has concluded based on evaluations contained in its Tier I Risk-Based Corrective Action guidance document (March 2000) that dissolved phase diesel presents a potential health concern at certain levels. In addition, DEQ is mandated to enforce other environmental requirements, including Montana's Water Quality Act that prohibits placing wastes (diesel fuel) where they may impact any state waters, and the federal underground storage tank regulation (40 CFR § 280.64) that require free product to be removed from groundwater to the maximum extent practicable.

PCEC has correctly stated that biodegradation occurs at the fringe of the plume or in the predominantly gas-air saturated portion of the plume. Very little, if any, degradation occurs within the hydrocarbon saturated or water-hydrocarbon saturated portion of the plume. This is the reason free product removal is always recommended before biodegradation can be used as a remediation tool.

DEQ does not believe there is a dilemma. As stated, DEQ has a regulatory obligation to enforce free product removal "to the maximum extent practicable" and to prohibit diesel fuel from impacting state waters. Using a phased approach, the ROD requires passive recovery of free product diesel and natural attenuation of dissolved phase diesel in groundwater. Worker health and safety concerns are of critical importance, as a large portion of the Livingston Complex remains an active facility. DEQ has considered the ongoing operation of MRL and Talgo-LRC, including health and safety issues, when formulating the phased diesel fuel recovery plan specified in the ROD. Please refer Response #5 and Response #7 regarding free product recovery.

<u>Comment 18:</u> The preceding conflicting perspectives on the potential merits vs. possible futility of attempting further diesel recovery at the LRY force me to consider possible options for a middle ground. Perhaps "Phase I" of the MDEQ Proposed Remedy could be initiated with a contingency that the program will be halted if it appears that a thick, definitely recoverable free product layer is not present.

Response 18: Additional groundwater monitoring wells will be installed in areas which may contain the greatest free product thicknesses, such as the central railyard area. During well installation, well log and groundwater monitoring data from existing wells will be used to locate new monitoring wells in targeted free product recovery areas.

Free product has been recovered in previous treatability testing studies. The purpose of Phase I is to determine the most efficient passive recovery methods and to better define the extent of recoverable diesel fuel for implementation of Phase II.

Comment 19: It may seem somewhat surprising that, as a consultant to the citizens' group PCEC, I would publicly consider anything but the most stringent, extensive possible requirements for BNSF, the polluter at the Railyard. I raise these issues primarily because I think it is extremely important for the public to understand the imperfect nature of free product recovery, the significance of biodegradation, and the tradeoffs of risk and benefit, no matter what

the financial resources of the PRP and the conscientious oversight by the State. It is valuable to articulate the nontrivial risk of performing remediation work within the active railyard as well. The MDEQ has overseen substantial remediation tests and interim actions by BNSF at the LRY in the past several years, and the Natural Resource Damage Assessment has yet to proceed; whether the ROD compels BNSF to install further recovery wells or not, observers will not be able to say that BNSF was allowed to simply walk away.

Response 19: DEQ recognizes and appreciates the thought and understanding behind this comment. DEQ agrees it is important for the public to understand the imperfect nature of recovering free product, the importance of biodegradation and the balance between protecting the public from potential risks and protecting workers from risks during cleanup activities. At the same time, DEQ must determine what level of cleanup is necessary based upon the risks posed by contaminants. DEQ considered all the mandated criteria in selecting the phased diesel fuel recovery system. Phase I diesel fuel recovery will involve testing free product recovery technologies for two to three years so sufficient information is obtained to design the Phase II diesel fuel recovery system. Some of the product recovery technologies that will be tested include canisters, various pumps, vacuum enhanced recovery, bioventing and enhanced biodegradation. To increase free product recovery, recovery wells will be installed in areas with the greatest free product thickness measurements.

3.2 Comments from Richard Keller, representing MRL

<u>Comment 20:</u> This is a formal response to the proposed plans to put in recovery wells at Livingston, in the MRL railyard. Montana Rail Link (MRL) desires to continue its commitment to being environmentally proactive and sensitive. We have reviewed your proposed plan and have some safety concerns and recommendations.

We at MRL believe we can operate a railroad without injuring our employees and over the past few years, we have undertaken a significant change in our safety culture. Through 1997, we had our best year ever since the start of MRL with 40 reportable injuries, and currently, through nine and one half months of 1998, we have 10 injuries, a dramatic change from previous years. But we are still not satisfied. As stated before, MRL believes we can operate a railroad without injuring our employees. Over the past four years, about 43 percent of MRL's injuries have occurred in our active railyards. And as an example, in 1995, we had an injury involving an MRL employee running into a monitoring well in our Laurel railyard. The employee required twelve sutures and lost two working days. So you can see, we are concerned about the placement of the monitoring wells in the middle of the Livingston railyard.

During MRL safety meetings and safety audits, our people have constantly brought up conditions in yards and on the right-of-way to reduce tripping hazards, as well as reducing outside contractor activities on our property.

In your plan, you have proposed over forty wells be installed immediately in or adjacent to our active railyard in Livingston. Throughout our Livingston railyard complex, we have many physical obstacles; electrical, gas, industrial and municipal waste piping, signal wires, communication cables, and US Sprint lines. That would make the installation of these wells very

tedious and difficult to do. As it is an active railyard, the installation would have to be coordinated with the railroad, especially for the wells that would be installed between tracks in the yard.

All MRL crafts, operating, mechanical and maintenance of way are working in conjunction with each other among random moving trains and free moving cars. Movement of trains and/or cars can be made in any direction at any time, in a close working environment. Track centers are as close as thirteen feet from each other, leaving only three to four feet between cars on adjacent tracks.

More importantly, we are very concerned with the safety of our employees and outside contractors during construction and after, during collection procedures required of these wells as outlined in this proposal.

Our employees work under Company and Federal Regulations to ensure their safety. These rules are complex. Outside contractors are required to be accompanied by an MRL flagman certified on these rules, or be completely trained and approved by MRL before they can work on MRL property. We feel our employees would be subjected to risk of injury due to these proposed wells and the additional activities of contractors having to be in our yard to monitor and operate these wells.

Because there is no data for the Livingston railyard showing that this type of passive recovery will work, we ask that phase one remain outside of tracks one through fourteen. Then, if these wells prove to be productive in recovering an acceptable amount of product, MRL would like to be intimately involved with phase two as to where and how additional wells may be installed. We have one hundred and nineteen employees living and working in the Livingston area. Please consider the above proposal or some other alternative to mitigate the possible increased risk of the safety of persons having to work in the yard.

Response 20: Please refer to Response #3 regarding worker safety. Many of the old monitoring wells at the BN Laurel railyard are "stick up" wells; several of these have been destroyed by equipment. All of the proposed wells within tracks at Livingston will be "flush-mounted" and should pose no trip hazard to workers using the area. The worker safety issue has received much consideration while planning the placement of recovery wells within the active railyard. The Phase I diesel fuel recovery system will locate and install 70% of the wells along abandoned track 4, where the working distance between tracks is 27 feet instead of 13.5 feet, and along the Park Street right-of-way, a safe distance from the mainline. Only five wells will be located within the most active portion of the railyard during Phase I. These wells will be installed along the tunnel area south of the MRL shop building where free product thickness may be one foot or more. Two monitoring wells are also proposed on either side of the tunnel area to measure free product. Six wells will be installed east of the MRL shop building because this area contains 0.5 feet of free product or more and the distance between tracks into the MRL shop building is greater than 13.5 feet.

While constructing Test Cell 4 Envirocon demonstrated by careful planning, communication and utilizing train traffic controllers and flagmen, that workers can use heavy equipment within active

tracks to install a large recovery system without accident or injury. DEQ requested, and MRL has submitted its safety plan to DEQ. MRL and Talgo-LRC will be consulted on the separate safety plan required for Phase I implementation. DEQ will consult with MRL and Talgo-LRC in designing and locating wells for the Phase II diesel fuel recovery system. DEQ encourages MRL to provide any information it believes pertinent to further reduce safety risks to workers during any of the cleanup activities.

3.3 Comments from the City of Livingston

<u>Comment 21:</u> Please consider these comments that I am delivering tonight preliminary comments on behalf of the city of Livingston as I will be reviewing them for final adoption by the City Commission prior to submitting them as our final written comments before November 22, 1998.

Response 21: DEQ considers the written comments received from the city of Livingston to be final comments and responded accordingly.

Comment 22: These comments are in response to the proposed remedy for the final clean up of the Livingston Railyard which was presented to the public on September 22, 1998. It is our understanding that this plan is a draft of the final "Record of Decision" and presents the DEQ's preferred remedies for cleaning up the remaining soil contamination and diesel fuel on top of the ground water and in and around the BN site. Once final written comments are received by November 22, 1998, approximately five months will be needed to complete the Record of Decision. When the "Record of Decision" is completed, then the parties (BN and the State Department of Environmental Quality) will negotiate a new consent decree to provide fair implementation of the remedy. Finally, after the consent decree is completed, a "Remedial Action Document" must be developed prior to implementation of the "Record of Decision" under the new consent decree. This process could easily extend beyond the year 2000!

Local Representation in Final Consent Decree - The City feels strongly that interim actions should be implemented wherever possible and that local representation including the City, County and Park County Environmental Counsel's representation should be included in a final negotiation of the consent decree and record of decision implementation, operations and maintenance, and closure of this site. In concurrence with Representative Bob Raney's October 15, 1998 letter which I have enclosed, the City will be writing the Governor to demand that our community have a representative present at all negotiations between BN and DEQ concerning the final consent decree and resource damage award. We also request that all negotiations be held with open doors.

Response 22: DEQ experienced resource contraints and encountered issues not addressed in the proposed plan during the development of the ROD. DEQ apologizes for the length of time it has taken to issue the ROD, but believes all the risks to human health and the environment are adequately addressed by the ROD. Please refer to Response #6 regarding additional state resources for the facility, and Response #1 regarding continued interim actions and public participation in negotiations.

<u>Comment 23:</u> Comments on Proposed Remedy - With regard to the proposed remedy for final cleanup, the following are specific issues and concerns:

- 1. Proposed Interim Actions In the spirit of trying to accomplish the best cleanup of the contaminants on the site, we encourage the following activities: (As you can see from the enclosed October 6, 1997 letter from the Park County Environmental Council, the community continues its encouragement to move forward with the cleanup while the final plan and consent decree are being negotiated.)
 - 1. Fence and sign the cinder pile to prevent public access to the pile which contains asbestos by November 1, 1998 See October 5, 1998 letter from John Wadhams of the DEQ to Judy McDonough of the Burlington Northern/Santa Fe Railroad regarding "Burlington Northern/Santa Fe Livingston Site Temporary Fence Around the Cinder Pile". We concur with this action as a temporary action only. The City's interest is to see this cinder pile which contains asbestos removed from the community ultimately as it will continue to be a potential problem for generations to come if it is not extracted from the community.
 - 2. Remove and dispose/treat the contaminated soils under the electric shop and transfer the man way pit which may be continuing to pollute the underlying groundwater.
 - 3. Institute a basement gas sampling program in private ground water well sampling.

Response 23: Please refer to Responses #1 and #6 regarding continued interim actions, and Response #7 regarding the cinder pile. The volume of material in the cinder pile is estimated at 202,000 cubic yards. DEQ has determined it would not be cost-effective to remove the pile and may actually increase airborne asbestos and public health risk if the cinder pile is moved off-site. Recontouring and covering the pile with clean soil may increase the potential for asbestos to become airborne in the short term, but this concern can be controlled by careful planning and wetting of the soil as it is moved during recontouring of the pile. Work should occur during the time of day when winds are minimal. These and other construction specifications will be spelled out in the approved cinder pile work plan. DEQ will emphasize protection of public health and worker safety during construction activities at the cinder pile. Engineering controls and personal protection equipment will be used to minimize worker exposure. The clean soil cover and vegetation will be checked at least once each year to ensure the cap is intact and not eroding. The cinder pile will remain fenced and signed and institutional controls will be placed on the property to prevent the cap from being compromised.

Comment 24: Potential Health Effects from Past Exposures - It's our feeling that the Agency for Toxic Substances and Disease Registry Report was inadequate in the sense that it did not assist the community in understanding the potential health effects from past exposures to the soil contamination and diesel fuel and solvent contamination which has been created and compounded over the course of the last nearly 100 years. We request that the community education requested by the Park County Environmental Counsel from the ATSDR be provided to

Livingston residents who have been exposed to these contamination levels for extended periods of time.

Response 24: Please refer to Response #6 regarding ATSDR's Health Assessment.

<u>Comment 25:</u> Encourage Additional State Resources for Multiple Clean Up Sites - We feel that the redirection of Mr. John Wadhams, the project coordinator for DEQ for the BN site, in the midst of his working on this site, delayed completion of this cleanup. We recommend that in the future additional staff be assigned to additional cleanup sites so that individual cleanup projects can be accomplished in a timely manner.

Response 25: Please refer to Response #6 regarding additional state resources for the facility.

<u>Comment 26:</u> Diesel Fuel Recovery - The City concurs with the State's preferred remedy for diesel fuel recovery which involves both passive recovery and bioventing to be implemented in a phased approach with the second phase building on information gained through implementation of phase one. We feel it is particularly important to get more data from the installation of new wells at the center of the diesel plume to measure product thickness. In summary, however, we support the State's plan for diesel fuel recovery in total, but express our dismay over the limited recovery which appears to be possible with current technologies.

Response 26: Please refer to Response #5 and Response #7 regarding free product recovery.

<u>Comment 27:</u> Continued and Consistent Local Monitoring - We as a community are very concerned about maintaining a consistent local monitoring effort throughout the whole project so that the status of the cleanup effort in comparison to the goals identified in the record of decision can be monitored and influenced where necessary by the community. We are therefore interested in securing financial assistance to ensure that local technical assistance and support (technical and possibly legal) is available to assist the community in ensuring that work is completed as per plans and in accordance with environmental laws.

Response 27: The ROD requires monitoring of: 1) any domestic use well that is currently in use, which is located within the groundwater plume; 2) a network of monitoring wells for both dissolved chlorinated solvents, lead, and dissolved and free product diesel fuel; and 3) indoor air in representative homes. The monitoring is necessary to protect human health, evaluate cleanup progress, track potential diesel and chlorinated solvent plume movement, evaluate monitored natural attenuation (MNA), and ensure compliance with ERCLs. Montana's Comprehensive Environmental Cleanup & Responsibility Act (CECRA) does not provide for funding to local governments or citizens groups that are involved in overseeing cleanup at sites; therefore, DEQ is unable to provide funding to the City of Livingston to participate in oversight of cleanup activities. DEQ's project officer is able to provide technical support to the City of Livingston in interpreting information and cleanup activities at the site. EPA provides Technical Assistance Grants (TAG) to sites that are proposed for listing or listed on EPA's National Priorities List (NPL). The BN Livingston Shop Complex was proposed for listing on the NPL in August 1994; however, the listing was not finalized. EPA did provide a TAG to PCEC to monitor cleanup at

the site. DEQ will support PCEC if it seeks to extend the EPA TAG grant to assist with monitoring issues.

<u>Comment 28:</u> In summary, we would like to thank the Department of Environmental Quality, the Burlington Northern/Santa Fe Railroad, local representatives like those members of the LIFE Committee, Park County Environmental Committee, and other interested community representatives for their efforts and input to this important cleanup process. The city of Livingston is interested in ensuring that ground water contamination, soil contamination and potential contamination in our air from asbestos blowing from the cinder pits is mitigated for the long term. It is in our children's interests and their children's children's interest that we seek the best solution for cleaning up the problem areas identified above as soon as possible.

Response 28: Comment noted.

3.4 Comments from Montana House of Representatives - Representative BobRaney (attached to the city of Livingston's comments)

<u>Comment 29:</u> The issues surrounding the cleanup of the Livingston BN pollution site are, and always have been, very difficult to understand. With that in mind, I am relaying, my concerns about the process which our community presently faces concerning the Final Consent Decree. That decree will implement the BN Livingston Shop Complex Proposed Plan (the Final Remedy) upon which we are presently commenting.

It is my understanding that once the Final Remedy is selected, BN and the State (represented by the Department of Environmental Quality) will negotiate the final decree. I believe that during, that process of negotiating the final decree, the attorneys involved may negotiate to water down the Final Remedy to where little or nothing, remains. Our community has been through a tough struggle on this issue for 14 years. We deserve more than a few attorneys, who are not connected to Livingston, deciding our fate behind closed doors.

The future of the pollution under our town may well be put into the hands of two attorneys, one from BN and one from DEQ (representing our interests??). And, if my suspicions are correct, the two attorneys who may be doing, the negotiating are personal friends.

Lots of people from our community have poured countless hours, days, months and years into getting, the best clean up possible. Two major hurdles remain after the adoption of the Final Remedy - the Final Consent Decree and the Resource Damage Award. Our community must once again get actively involved, or we will get the short end of the stick.

Therefore, I would urge you write the Governor and demand that our community have a representative present at all negotiations between BN and DEQ concerning the Final Consent Decree and Resource Damage Award. I believe you should request that all negotiations be held with open doors as well.

Thank you for your attention to this matter.

Response 29: Please refer to Response #1 regarding public participation in negotiations. DEQ's attorney will represent the citizens of Montana; there is no collusion between attorneys for BNSF and DEQ. Montana's natural resource damage trustees, in coordination with Montana's Natural Resource Damage Program, will determine if assessment and litigation are warranted at the site and what public participation is allowed.

3.5 Comments from PCEC (attached to city of Livingston's comments)

Comment 30: This letter is written to express our concern over the delay in completing and presenting the Feasibility Study and Proposed Plan for the Livingston BN Railyard CECRA site. From our prior conversations we anticipated cleanup activities continuing at the site this summer and also expected a public meeting presenting the Feasibility Study and Proposed Plan for the primary hydrocarbon, soils and groundwater contamination. The length of time it has taken to finalize the report is unreasonable. We are also concerned that the remaining contamination at the Railyard is not being cleaned up in a timely manner. The soil contamination at the old Electric Shop and the free product remaining at the freight train refueling area is of particular concern and we expected action at those sites this field season. Since the delay appears to be political rather than technical we are asking for a written response as to the status of the field work and Feasibility Study/Proposed Plan so we may determine whom to contact to address the schedule delays. Thank you for your assistance.

Response 30: The delays are not political; DEQ experienced resource contraints and encountered technical issues not addressed in the proposed plan during the development of the ROD. DEQ apologizes for the length of time it has taken to issue the ROD, but believes all the risks to human health and the environment are adequately addressed by the ROD. Please refer to Response #6 regarding additional state resources for the facility.

3.6 Comments from Warren R. McGee, Ex-LIFE Chairman

<u>Comment 31:</u> Action to be required to attempt some clean-up of BNSF pollution of the city of Livingston.

Remove entire cinder pile from the site because it will continue forever to uncover contaminants detrimental to the health of Livingston residents and future commerce within the city of Livingston and monies should be advanced to the city to provide the best medical attention to residents in the future. We have lost too many residents and NPR of BNSF employees to unknown causes in the past.

The cinder pile was begun in 1948 of weekly dumps of four or five gondolas of unburned sulphurous coal, asbestos lagging from steam engine boilers that were overhauled in Livingston Roundhouse monthly from 1948 through 1954 and any other garbage, oils, greases and chemicals used by NPR and as a "dump" since 1954 when diesel locomotives were employed exclusively by NPR or BNSF.

<u>Response 31:</u> Thank you for your historical information of dumping at the cinder pile. Please refer to Response #23 regarding removal of the cinder pile.

DEQ does not know of any monies available in Montana to monitor and provide medical attention to residents or their families. ATSDR has limited funding available nation-wide. Please refer to Response #27 regarding funding for overseeing cleanup.

Comment 32: Continued efforts employing latest technology to evacuate unknown gallons of diesel oil dumped wantonly on yard tracks, from "C" street to stockyard tracks (about Q street) at eastern end of Livingston. Since 1954 when Northern Pacific/BN, Inc. mechanical forces wanted diesel loco's fuel tanks on these units which held + or - 2400 gallons on each unit, evacuated for shop forces to overhaul these motors in local shops. This action occurred weekly, and dirtied many employees households rugs and precipitated many family arguments, "who done it" subject matter. And to make a bad environment worse, BN, Inc. gave its Livingston shop employee's over 50-52 gallon barrel's of carbon tetra chloride (CCL4) to use on their home "do it yourself" mechanical projects. Are some of these barrels in use by un-informed residents? That indicates the irresponsibility of the offending parties to Livingston residents past, present & future. I have no idea how many dollars it will take to build, staff and maintain the health of Livingston residents in the years to come, but BNSF should be required to pay that expense forever for Livingston residents who live or lived down wind or down stream from BNSF base of operation. Here in Livingston, Montana, we deserve that at least.

Response 32: The ROD requires recovery of free product diesel fuel from groundwater followed by bioventing of residual diesel fuel in the soil and MNA of dissolved phase petroleum. DEQ has received previous reports about dumping diesel fuel along track 11 so repairs could be made on fuel tanks. This information may explain the east to west elongated shape of the diesel plume and why the thickest amount of free product is in this area. Phase I will included installation of wells in this area. Please refer to Response # 5 and Response # 7 regarding free product.

DEQ has received reports about cleaning solvents given to BN workers when the shops closed in 1986 but has no documentation to support those reports. Groundwater analytical data do not indicate off-site sources of VOCs in the groundwater. DEQ encourages anyone with specific information about drums of cleaning solvents from the shop complex being used outside the railyard to contact DEQ.

Although retrospective epidemiological health studies are difficult to complete, DEQ worked with ATSDR on three health studies that investigated whether environmental contamination at the BN Livingston Shop Complex is related to specific health problems in the community. ATSDR did not identify an association between environmental contamination at the site and pancreatic cancer. Under CECRA, BNSF is liable for cleaning up the site; however, DEQ has no statutory authority that requires BNSF to pay to "maintain the health of Livingston residents in the years to come."

3.7 Comments from Jean O. Cole

<u>Comment 33:</u> I commend you for trying to cleanup the environment. I have lived some years adjacent to the site of the abandoned Q Street well. In the past there was a very strong odor on my property which I assume was from the contaminants in the soil. Since the last flood I do not

notice it so much. My property was flooded after the city put in a dike beginning at the corner of Q Street and East Lewis Street going (east) toward the Yellowstone River. This is the corner where the Q St. well is located. I do believe the railroad contamination naturally drains in my direction perhaps along old natural waterways that existed in the past and which have since been buried with later expansion of dwellings and landfill.

Response 33: Your home is located at a lower elevation than the BN Livingston Shop Complex, but current data from the site indicates that the majority of petroleum contaminated groundwater is located within the railyard, with a small portion extending slightly south of Park Street. Also, recent groundwater monitoring of monitoring wells located between the railyard and your home indicate that the chlorinated solvent plume does not extend below your property. The RI did not indicate significant soil contamination in residential areas beyond the railyard. In 1988, the Q Street municipal water supply well was abandoned because of chlorinated solvent contamination in the well. The contamination was detected at levels below EPA's maximum contaminant levels for PCE in drinking water. It is unlikely that the low levels of chlorinated solvents in the groundwater at that time would have caused the odors. DEQ does not know the source of the odors you noticed in the past. DEQ is unable to assess past risks to contamination and without environmental data from earlier years of railyard operations, it is difficult to speculate how early contamination at the site may have caused odors. However, the ROD sets forth a remedy that is protective of current and future risks to human health and the environment and requires monitoring of both the chlorinated solvent and petroleum plumes to ensure the plumes are not migrating or expanding.

<u>Comment 34:</u> At this point in time the air and noise pollution from LRC and MRL is of greater concern to most Livingston residents. They continually leave sick diesel units rumbling and howling and belching fumes day and night in the railyard. People have to use noise masking machines in order to get any rest or sleep and are forced to breathe the fumes day and night.

They must have dumped or spilled a goodly amount of diesel fuel about two weeks ago - I woke up during the night choking on diesel fumes and had to close all the windows and use my air cleaner in order to breathe. I do hope you will consider doing something about this air and noise pollution as well as the soil pollution. It would certainly improve the health of Livingston residents.

Back in the 1960s one of the Middle East countries - Lebanon - banned importation of diesels and set a time limit for phasing out use of those already in the country because of air and noise pollution. Just recently I heard that some California officials smartened up and were putting restrictions on diesel use because of the pollution they caused.

There must be some way to reduce or stop air and noise pollution in Livingston.

Response 34: DEQ has received other similar concerns about the noise and air pollution emanating from existing operations at LRC and MRL, especially during atmospheric inversion events. DEQ understands the concerns of those living adjacent to a railyard facility. However, a superfund remedy will only alter existing operations to the extent operations cause or affect recontamination of remediated media or cause or affect exceedances of cleanup standards.

Although not directly regulated by CECRA in this instance, the circumstances described by the commenter are regulated pursuant to the federal Clean Air Act. In 1998, EPA established emission standards for nitrogen oxides (NOx), hydrocarbons, carbon monoxide, particulate matter and smoke for newly manufactured and remanufactured locomotives and locomotive engines. These had previously been unregulated. These standards began to phase in last year and will result in the achievement of approximately a two-third reduction in NOx emissions and a 50 percent reduction in hydrocarbons, and particulate matter emissions. For more information, see EPA's website: http://www.epa.gov/otaq/regs/nonroad/locomotv/.

In an attempt to resolve similar complaints in the past, LRC moved the load testing station located on the east side of the shops to the west side of the shop buildings. LRC officials have also discussed the possibility of constructing a hood and stack over the load testing station to help disperse diesel exhaust. This building has not been constructed. The local environmental group, PCEC, has had discussions with LRC about the diesel exhaust problem and is working with LRC to arrive at a solution.

3.8 Comments from BNSF represented by Browning, Kaleczyc, Berry & Hoven, P.C.

The Burlington Northern and Santa Fe Railway Company ("BNSF") provides the following comments on the Proposed Plan for the Livingston Shop Complex. In addition, BNSF hereby incorporates by reference all prior correspondence, comments, and reports submitted to the Montana Department of Environmental Quality ("DEQ") and its predecessor agency, from BNSF or BNSF's consultants. BNSF also incorporates, by reference, Envirocon's comments on the proposed plan, being submitted under separate cover (also attached).

Comment 35 (A) Electric Shop: BNSF generally agrees, with certain exceptions, with DEQ's Proposed Plan for the Livingston Shop Complex. BNSF agrees to proceed with the source control work outlined in the Proposed Plan. In fact, BNSF will be submitting for DEQ's review and approval, a work plan for the electric shop portion of the excavation work. BNSF believes that the electric shop work plan can be implemented as an Interim Action under the Modified Partial Consent Decree (December 1989). BNSF will treat, with lime and soil vapor extraction ("SVE"), the soil exhibiting a hazardous characteristic to meet the land disposal restrictions, if disposed on land.

Response 35(A): In addition to exhibiting hazardous characteristics, DEQ has determined that the soil around the electric shop is a listed hazardous waste. Please refer to Response #1 regarding continued interim actions.

<u>Comment 35(B) Groundwater:</u> BNSF agrees to work with DEQ, Park County, and the city of Livingston to implement the institutional controls related to the use of groundwater at the facility. In addition, BNSF agrees to develop a groundwater sampling schedule with DEQ to monitor remediation efforts.

Response 35(B): DEQ believes institutional controls (Ics) are an important part of the ROD to ensure the protection of human health. Establishment of a controlled groundwater area is one IC DEQ believes is appropriate for the site. In addition, the ROD requires restrictive covenants to be placed upon the railyard property to help ensure that the use remains industrial and that no excavation occurs on or within the cinder pile. Please refer to Response #27 regarding the monitoring requirements in the ROD. DEQ will work with BNSF and the public to develop an appropriate groundwater monitoring program.

<u>Comment 35(C) Hydrocarbon/Free Product Plume, paragraph 1:</u> The plan defines free product as "diesel fuel floating on top of the groundwater." This definition is confusing and not technically based. As used in these comments, BNSF relies on the common technical definition of free product, which defines free product as "product that will drain under the influence of gravity into a well" ("free product").

The past ten (10) years of groundwater monitoring has already shown that the free product plume is not migrating, nor are dissolved hydrocarbons migrating away from the plume in the underlying aquifer. Moreover, the plume is biodegrading naturally. However, BNSF agrees to proceed with additional "free product" recovery, although BNSF believes that a different approach from the one called for in the Proposed Plan would be even better suited to achieving DEQ and BNSF's goals for remediating the "free product" plume. In addition, BNSF agrees with DEQ's phased approach to remediate "free product."

BNSF, for safety reasons, is opposed to drilling through the tunnel beneath the tracks or having workers conduct remediation activities in the tunnel. The basis for this opposition is that significant and unacceptable risk to workers safety would result in drilling through the tunnel and placing workers in a confined area.

BNSF would like to clarify, for purposes of these comments, that the use of the term "bioventing" in relation to free product cleanup means "bio-venting" or "bio-remediation," and is not to be confused with "soil vapor extraction" used in relation to the remediation of volatile organic compounds, or "bioventing" used exclusively to remediate vadose zone contamination by hydrocarbons.

Although, BNSF agrees to proceed with additional recovery efforts, BNSF believes that, given the lack of risk posed by the plume to the public, exposing remediation workers, Livingston Rebuild Center personnel, and Montana Rail Link personnel to a continuously high risk work situation is inconsistent with the goals of decreasing the overall risk at the facility. In addition, given that the plan does not cite an unacceptable risk associated with the free product, DEQ's evaluation of cost-effectiveness is inadequate and does not comply with §75-10-721, MCA.

Response 35(C): DEQ is using the regulatory definition found at 40 CFR 280.12, and guidance that further defines free product as "immiscible liquid phase hydrocarbon existing in the subsurface with a positive pressure such that it can flow into a well." DEQ will consider BNSF's definition of free product when reviewing BNSF's comments. Please refer to Response #81.

DEQ agrees that based on the existing monitoring well system, diesel fuel and dissolved hydrocarbons may not be migrating away from the diesel plume in the underlying aquifer. However, it should be noted the existing diesel fuel monitoring network is primarily limited to the outer fringes. In addition, monitoring wells down gradient from the diesel plume are not in locations that could conclusively state diesel fuel and dissolved hydrocarbons are not migrating away from the diesel plume. Furthermore, TPH and TPH chemical constituents have been detected in groundwater at some monitoring wells, including the Depot and freight train refueling areas. One of the objectives of the Phase I diesel recovery plan is to install additional monitoring wells east and south of the diesel plume. Two additional diesel fuel monitoring wells will be properly constructed and installed at the leading edge of the plume and four monitoring wells will be installed at the southern edge of the diesel plume to monitor for potential migration of diesel fuel and dissolved hydrocarbons in groundwater.

Please refer to Response #7 regarding the MRL tunnel. In our initial evaluation of drilling through the tunnel, DEQ conferred with a drilling contractor experienced in drilling through old mine adits. The contractor believed that because of the satisfactory age of the tunnel, there would be no reinforcing steel in the concrete and penetration would be feasible. As part of remedial design, the structural stability of the tunnel will be evaluated.

The definition of soil venting given in the proposed plan is "Soil venting (also referred to as bioventing) - In situ microbial degradation of contaminants by introducing oxygen into the subsurface." DEQ intends the use bioventing to introduce air into the subsurface to aid in the microbial degradation of petroleum constituents trapped in the vadose zone, particularly in the smear zone above the water table. Although not its primary purpose, it would not be unexpected for bioventing to also volatize and remove some lighter-end petroleum constituents from free product or soil contaminants. DEQ will use the term bioventing in the ROD.

DEQ has a regulatory obligation to remove free product to the maximum extent practicable and protect groundwater. The performance of the Phase I recovery system will be evaluated after two to three years. Please refer to Response #17 regarding the unacceptable risk from petroleum and Response #85 regarding cost-effectiveness.

Comment 35(D) Cinder Pile: BNSF has fenced the cinder pile. In addition, BNSF will proceed with sampling the surface soils of the cinder pile, and will work with DEQ to develop an appropriate remedy for the cinder pile. Such a remedy may include capping and/or re-contouring the cinder pile.

Response 35(D) Cinder Pile: Please refer to Response #7 and Response #23.

<u>Comment 35(E) Sampling:</u> BNSF agrees to sample indoor air as requested by DEQ. However, as with earlier indoor air sampling, the results are often very difficult to separate from background, and therefore may not be directly attributed to the Livingston Railyard.

Response 35(E) Sampling: DEQ appreciates BNSF's commitment to perform indoor air sampling. Please refer to Response #78.

Specific Comments from BNSF on the Proposed Plan

<u>Comment 36: Page 1, 1st Paragraph, Executive Summary:</u> Please change to "The Burlington Northern and Santa Fe Railway Company."

Response 36: Change noted. The Burlington Northern and Santa Fe Railway Company will be cited as the correct company name in the ROD.

<u>Comment 37: Page 1, 5th Paragraph, Executive Summary:</u> No free product has been detected at the Depot Area and no remediation was anticipated or included in the FS.

Response 37: The fact that BNSF did not include the depot area in the FS document does not justify ignoring this potential problem area. Early on in the investigation, free product was detected in monitoring well LG-11 located on Main Street. Product thickness measurements have never been made in monitoring wells along Main Street. The ROD includes field activities to measure free product and residual diesel fuel in the depot area and recovery of diesel fuel, if necessary. It also requires that once free-product is removed to the "maximum extent practicable" monitoring for natural attenuation of dissolved phase petroleum will be implemented. If additional data confirm that there is no free product at the depot area, then natural attenuation monitoring will be initiated to ensure that the dissolved phase diesel is naturally attenuating.

<u>Comment 38: Page 1, 8th Paragraph, Executive Summary:</u> The phrase "high levels of contamination" is unnecessarily alarming and has no particular technical meaning; and should not be used to characterize measurements made in micrograms per cubic meter.

Response 38: The phrase "high levels of contamination" was not meant to alarm readers. Due to the abbreviated nature of the proposed plan, the phrase was used to distinguish between homes with levels of contamination that present an unacceptable potential risk and require mitigation from those homes with acceptable levels of contamination. This language is not in the ROD.

<u>Comment 39: Page 2, 2nd Paragraph, Introduction:</u> The plan states "DEQ believes the preferred remedy would meet public preferences for completing the cleanup." This sentence is not consistent with CECRA or CERCLA. Remedies must be evaluated against 8 criteria, public comment is only a modifying criterion.

Response 39:

The statement is not intended to provide an evaluation of the State's preferred alternative based only on the public comment criterion. The statement was made as a general statement to imply that based on issues which are important to local residents, namely, diesel fuel, electric shop soil and the cinder pile, the community would accept and encourage the State to pursue it's preferred remedy to complete cleanup at the site.

Thirteen various companies, individuals, local governments, and a citizens group commented on the proposed plan. While about half of the commenters encouraged remedial action for the cinder pile, three commenters thought the entire pile should be removed and disposed of at an off-site location. Two commenters did not believe the cinder pile poses a risk, but proposed recontouring and some capping of the pile. Two commenters supported the remedial action for the cinder pile outlined in the proposed plan. Others had no comment regarding the cinder pile.

Seven commenters supported the remedial action for the electric shop soils and transfer pit manways outlined in the proposed plan. Others had no comment regarding the electric shop.

Five commenters supported additional monitoring of private groundwater wells and sampling of indoor air in homes. One commenter expressed concern about distinguishing between contamination from the site and ambient and household concentrations due to other potential sources.

One commenter wanted the site cleaned up to pristine conditions and two commenters did not believe cleanup was required of the petroleum contamination because it did not pose a risk and there were no cleanup levels identified in the proposed plan.

One commenter requested monies to cover medical costs of those people affected by the site. Two commenters requested monies to participate in the oversight of cleanup activities.

Four commenters supported free-product recovery, but some expressed concerns that it would not be 100% effective and that there were safety concerns associated with the free-product recovery and bioventing. One commenter suggested surfactants be used at the site instead of bioventing. One commenter only expressed safety concerns. Two other commenters disagreed with free-product recovery.

One commenter requested that the selected remedy address current noise and emissions from locomotives in the railyard.

The selected remedy meets the requirements of CECRA as amended in 1991 and complies with CERCLA to the extent practicable. Please refer to Section IX "Summary of Comparative Analysis of Alternatives" and Section XI "Statutory Determination" of the ROD.

Comment 40: Page 4, 2nd Paragraph, 1st sentence, Site Background: This sentence should state, "Primary sources of contamination on the site were from locomotive fueling and rebuilding, cleaning and maintenance, waste oil reclamation and wastewater treatment."

Response 40: Although some of the contamination such as sludge and VOCs in soil have been removed from the site, other contamination, such as diesel fuel, residual VOCs in soil and groundwater remain on-site. Therefore, it is appropriate to refer to remaining contamination using <u>are</u> instead of <u>were</u>.

<u>Comment 41: Page 4, 6th Paragraph, Site Background:</u> It should be clarified that the Livingston Shop Complex facility is not listed by the EPA on the Superfund National Priorities List ("NPL") and it is not anticipated that the site will be listed in the future.

Response 41: DEQ agrees that if the site is remediated pursuant to CECRA, and adequately protects human health and the environment, EPA would not likely list the site on the NPL. However, EPA funds the technical assistance grant for PCEC, stays apprised of developments at the site, and is aware of the contents of this ROD. EPA maintains all its authorities.

<u>Comment 42: Page 4, 7th Paragraph, Site Background:</u> The RI did not determine that the outdoor air was impacted as stated in this sentence.

Response 42: DEQ agrees this sentence implies outdoor air (ambient air) is contaminated from Superfund site contamination and cleanup activities. This was not DEQ's intent; the language in the ROD clarifies this issue.

For clarification, during current load testing of locomotives at LRC, exhaust from existing operations may impact outdoor air. DEQ has received several complaints from residents about diesel locomotive exhaust. These complaints are typically investigated by the Enforcement Division. PCEC is also concerned about this issue and is working with LRC to resolve it. However, it should be noted that DEQ determined indoor air in some homes is impacted by site contamination and basement gas sampling will be performed to determine if indoor air in homes poses an unacceptable risk to residents. Please refer to Response #1.

Comment 43: Page 7, 2nd Paragraph, Site Background, Soil: This paragraph, which begins with "Between 1992 and 1995 . . ." is misleading. Of the 107 soil samples collected and analyzed, only 13 samples contained VOCs above the established cleanup levels.

Response 43: Thank you for the clarification; however, the paragraph accurately identifies areas of remaining soil contamination at the time of the proposed plan that needed to be remediated. However, in 1999 due to changes to WQB-7, DEQ revised the soil cleanup levels for chlorobenzene and vinyl chloride. The new WQB-7 standards altered the outcome of the soil cleanup levels, which were based on preventing further leaching of those contaminants that would cause exceedances of the contaminants in groundwater. Based upon the revised cleanup levels, the cinder pile meets the soil cleanup level for chlorobenzene; however, the ROD requires the cinder pile be remediated because of the potential risk posed by asbestos containing waste in the pile. These areas requiring remediation are specifically addressed in the ROD.

Comment 44: Page 7, Last Paragraph, Site Background, Soil: Visible asbestos was removed during sludge removal activities. Thirteen soil and two air samples collected both upwind and downwind of the cinder pile did not show any asbestos migrating from the pile.

Response 44: Comment noted. However, although all visible asbestos was removed from the surface of the cinder pile in 1991, wind and precipitation continues to erode cinders and could uncover asbestos.

Comment 45: Page 8, 1st Paragraph, Hydrocarbons (Diesel Fuel): The plan states, "more than 70 percent of the diesel fuel may be absorbed to soil." The plan should explain that, therefore, this fuel is immobilized in the subsurface and does not constitute "free product."

Response 45: The term "absorbed" may have been used too broadly. A portion of the diesel fuel trapped within soil and included in the 70 percent figure is thought to be held by surface tension and other physical properties in addition to adsorption. Please refer to Response #5.

<u>Comment 46: Figure 4, Explanation No. 3:</u> The plan refers to the soil as "grossly contaminated." BNSF would prefer that the plan consistently use the commonly accepted term of "visibly contaminated" as is used on Page 10, Number 3.

Response 46: The plan refers to removal of grossly contaminated soils. Grossly contaminated soil in some situations may apply to soils that are not "visibly" contaminated, but contain significant quantities of contaminants. Since only "visibly" contaminated soils were removed, the term "grossly" will be changed to "visibly" contaminated soil in the ROD. The ROD requires an evaluation of confirmation samples to confirm cleanup levels have been achieved. If cleanup levels are not achieved, additional measure will be taken consistent with the remedy.

Comment 47: Page 8, 3rd Paragraph, Site Background, Hydrocarbons (Diesel Fuel): Remedial investigations conducted in the depot area did not reveal any free product. Therefore, no further investigations or remediation is warranted in this area.

Response 47: During the diesel fuel sheen investigation, free product was detected in monitoring well LG-11 on Main Street south of the depot area. This area was ignored during the investigation. Additional diesel fuel recovery, bioventing and monitoring wells may need to be installed in this area to identify and delineate free product. If free product or residual diesel fuel is discovered in this area, recovery wells and/or bioventing wells will be installed. Even if free product is no longer detected in the depot area, dissolved phase petroleum was detected in this area and will require monitoring for natural attenuation to ensure the dissolved phase petroleum achieves cleanup levels.

<u>Comment 48: Page 8, 6th Paragraph, Site Background, Air:</u> The paragraph should state that based on sampling during remedial activities, outdoor air was not impacted by the site.

Response 48: Please refer to Response #42.

<u>Comment 49: Page 12, 5th Paragraph, Summary of Site Risks, Human Health Risks:</u> The first sentence should read, "Drinking contaminated groundwater poses the greatest <u>potential</u> human health threat at the BNSF Livingston site, where more than 90 percent of the total estimated risk is <u>potentially</u> associated with actually drinking contaminated groundwater, . . ."

Response 49: DEQ has clarified that estimated risks for drinking contaminated groundwater are potential risks.

Comment 50: Page 14, Summary of Site Risks, 2) For Diesel Fuel: The language used to describe the volume and to define "free product" in this section is misleading. This section should make clear that only a very small percentage of the total volume of diesel fuel cited in Paragraph 1, page 8, is potentially recoverable.

Response 50: Please refer to Response #5 regarding free product.

Comment 51: Page 14, Summary of Site Risks, 2) For Diesel Fuel, paragraph one: The plan states that it will require cleanup of the "free product" to the "maximum extent practicable." BNSF does not agree that the federal or state underground storage tank (UST) regulations are applicable or well-suited. The controlling requirements are found in CECRA at §75-10-721, MCA.

Response 51: DEQ agrees that the controlling requirements are found in §75-10-721, MCA as amended in 1991. Pursuant to §75-10-721(1), MCA "A remedial action...must attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures protection of public health, safety, and welfare and *of the environment* (emphasis added). Under CECRA, protection of the environment includes protection of groundwater.

In addition, pursuant to \$75-10-721(2)(a) and (b), MCA (1993), DEQ "shall require cleanup consistent with applicable state or federal environmental requirements, criteria or limitations" and "shall consider and may require cleanup consistent with substantive state or federal environmental requirements, criteria, or limitations that are well suited to the site conditions." Please refer to Response# 82(A) for a more detailed response.

Comment 52: Page 14, Summary of Site Risks, 2) For Diesel Fuel, paragraph two: The development of the "1/8 inch or less" criteria as a "free product" cleanup level is unrelated to risk reduction. No public health risks or completed exposure pathways for diesel "free product" are identified in the proposed plan. As the establishment of this criteria falls within the definition of a rule under Montana's Administrative Procedures Act (MAPA), this criteria can only be required if established via notice and comment rulemaking. Any application of the 1/8 inch or less criteria is arbitrary and without statutory or regulatory basis.

Response 52: Please refer to Response #83 regarding rulemaking and Response #61 regarding risks from petroleum.

<u>Comment 53: Page 14, Summary of Site Risks, 2) For Diesel Fuel, paragraph three:</u> BNSF requests DEQ's answers to the following questions. Is any risk reduction effected by removing "free product"? Does the cleanup level distinguish between whether the free product plume is spreading or stabilizing/shrinking?

Response 53: Please refer to Response #61 regarding petroleum risk; Response #5 and Response #7 regarding free product. The diesel plume is currently located some distance from the original refueling area where diesel fuel tanks leaked and spills occurred. This indicates the free product has moved in the past and may migrate further in the future. The cleanup level does not distinguish between whether the free product plume is spreading or stabilizing/shrinking.

The spreading of the free product plume is prohibited by the State's nondegradation standard; therefore the remedy does not allow spreading of any of the contaminated plumes at the facility. In addition, EPA's MNA guidance does not allow use of MNA in an expanding plume; MNA

following source removal is the selected remedy for petroleum in groundwater. However, this is a separate requirement from the clean up level for existing free product. That level is based on both protection of the environment and compliance with ERCLs.

Comment 54: Page 14, Table 1: Cleanup Levels: In footnote 1, the plan provides that, "the standards are equivalent except the federal standard for chlorobenzene in groundwater is less stringent (100 μ g/L) than the state standard (20 μ g/L)." The establishment of this more restrictive standard is seemingly in conflict with §75-5-309, MCA, which provides that state standards be no more stringent than federal standards unless the Board of Environmental Review makes certain written findings.

Response 54: DEQ has identified both federal and state water quality standards as applicable to the cleanup. In the ROD the cleanup levels were revised to reflect the most recent state water quality standards; chlorobenzene is one contaminant whose standard was revised so that it is no longer more restrictive. The state water quality standards were adopted following the appropriate procedures.

Comment 55: Page 15, Summary and Evaluation of Alternatives, No. 2: The plan states "compliance with environmental requirements, criteria and limitations addresses whether an alternative will comply with applicable and relevant federal and state environmental laws and regulations." However, the selection of applicable, relevant or well suited requirements falls within the definition of a rule under MAPA; thus, these requirements can only be applied or enforced if established via notice and comment rulemaking pursuant to MAPA. DEQ has failed to comply with MAPA in selecting applicable, relevant, or well suited laws or regulations.

Response 55: Please refer to Response #83.

Comment 56: Page 18, 4th Paragraph, Soil and Groundwater Alternatives, Alternative 2: BNSF has fenced the cinder pile. In addition, BNSF will sample the cinder pile and work with DEQ to identify an appropriate remedy for the cinder pile. Depending on the analytical results potential remedies may include capping and re-contouring the cinder pile.

Response 56: Please refer to Response #7 and Response #23 regarding the cinder pile.

<u>Comment 57: Page 22, Evaluation of Soil and Groundwater Alternatives, 2) Compliance with ERCLs:</u>

See Comment 18 above. This refers to DEQ's renumbered comment 55 above.

Response 57: Please refer to Response #55.

Comment 58: Page 24, Diesel Fuel Alternatives, Alternative A. No Action: As used in the plan, does the term "natural degradation" mean: (1) the time that it will take to deplete essentially all soluble constituents from the diesel fuel, (2) the time it will take for product thickness in all monitoring wells to diminish to 1/8 inch or less, or (3) the time it will take to degrade all distinct (separate)-phase petroleum products in the formation?

The plan's analysis is flawed. Since the plan does not identify any tangible threat to public health and the environment posed by "free product," why is the no action alternative "not expected to adequately protect public health and the environment?" With respect to long term effectiveness, the natural attenuation implicit in the no action alternative does result in reduction in toxicity, mobility, and volume of diesel fuel. Moreover, it is consistent with EPA's directive on MNA. OSWER Directive: 9200.4-17, November 18, 1997.

Response 58: See Response #61. Natural degradation is achieved, through time, when naturally occurring attenuation mechanisms, such as biodegradation, bring about a reduction in the total mass of hydrocarbon contamination for dissolved petroleum in groundwater and residual petroleum adsorbed to soil.

BNSF's comments show a misunderstanding of EPA's MNA guidance. DEQ has drawn upon EPA's Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites, U.S. EPA, Office of Solid Waste and Emergency Response, Directive 9200.4-17P, (April, 1999) as guidance in its decision-making for petroleum-contaminated groundwater, both as free product and as dissolved. EPA does not provide support for the use of MNA to address free product in these circumstances:

Control of source materials is the most effective means of ensuring the timely attainment of remediation objectives. EPA, therefore, expects that source control measures will be evaluated for all contaminated sites and that source control measures will be taken at most sites where practicable. At many sites it will be appropriate to implement source control measures during the initial stages of site remediation ("phased remedial approach"), while collecting additional data to determine the most appropriate groundwater remedy.

Directive 9200.4-17P, p.22.

EPA does not consider MNA to be a "presumptive" remedy, it is merely one option that should be evaluated with other applicable remedies. MNA should be selected only where it meets all relevant remedy selection criteria, where it will be fully protective of human health and the environment, and where it will meet cleanup levels with a time frame that is reasonable compared to that offered by other methods. The term natural degradation refers to the reliance on natural attenuation processes to achieve site-specific remedial objectives within a time frame that is reasonable compared to that offered by other more active methods (Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and UST sites, U.S. EPA, Office of Solid Waste and Emergency Response, Directive 9200.4-17, November, 1997). Although in Table 4 on page 27 of the proposed plan, for purposes of comparison, DEQ used six years to estimate the cost of DEQ's preferred remedy for diesel fuel, DEQ believes it may actually take up to 20 years or more to complete diesel fuel recovery. The no action alternative is not expected to protect public health and the environment within a reasonable time frame (DEQ has estimated without free product removal it would take more than 100 years to naturally degrade diesel fuel).

Comment 59: Page 24, Diesel Fuel Alternatives, Alternative B, Intrinsic Bioremediation and Institutional Controls: See comment 21, above. *This refers to DEQ's renumbered comment 58.* DEQ fails to provide the legal basis for its rejection of Alternative B, based on not removing the volume of diesel fuel on groundwater within an "acceptable time." The plan fails to articulate or provide the authority for establishing an "acceptable time."

Response 59: Please refer to Response #58 (above) regarding the length of time needed to achieve cleanup levels with Modified Alternative F. Since Alternative B does not incorporate any free product recovery, DEQ estimated it would take more than 100 years to degrade the diesel fuel using intrinsic bioremediation.

For free product recovery as well as other remediation issues, DEQ has relied on the State and federal ERCLs. DEQ has relied on certain EPA Documents such as, "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," U.S. EPA, Office of Solid Waste and Emergency Response, Directive 9200.4-17P, (April, 1999) as guidance in determining compliance with federal ERCLs.

The cited EPA guidance sets forth when natural attenuation is an appropriate alternative for corrective action under the Underground Storage Tank program. It is this guidance, as well as the Superfund regulations, which speak of "a reasonable time." For instance, the natural attenuation guidance states, "EPA expects that [MNA] will be an appropriate remediation method only where its use will be protective of human health and the environment and it will be capable of achieving site-specific remediation objectives within a time frame that is reasonable compared to the other alternatives." This statement supports DEQ's assertion that once free product is removed to the maximum extent practicable, the use of natural attenuation for the residual diesel complies with ERCLs and is an acceptable remedy.

As discussed in the ROD, Alternative B fails to meet the two primary selection criteria. It is not expected to provide adequate protection of human health and the environment because diesel fuel would remain on top of the groundwater. It would not comply with ERCLs because no attempt would be made to recover free product. Some of the alternatives are more effective in the long-term and reduce toxicity, mobility and volume better than Alternative B. Alternative B meets the short-term effectiveness criteria; it is implementable and it is less costly than some other alternatives. However, the costs do not include monitoring for a minimum of 100 years, which DEQ estimates as the length of time that would actually be needed to complete cleanup using Alternative B.

The determination of a reasonable timeframe is specific to each site. Each of the petroleum alteratives, with the exception of no action, rely on MNA as a component of the remedy. DEQ drew upon the NCP and MNA guidance in its determination on what would be reasonable time to allow source removal/MNA remedial action as opposed to more active forms of groundwater treatment. For a remedy relying on natural attenuation, EPA generally views a "...timeframe comparable to that which could be achieved through active restoration." [MNA guidance, p. 19.] as reasonable.

DEQ's selected remedy, using assumptions consistently applied for each alternative considered,

would cleanup the groundwater in timeframes similar to the most active alternative (six years vs. three). Alternative B, preferred by the commenter, would require cleanup to take an order of magnitude longer (twenty years vs. three years) if using assumptions consistently applied for each alternative considered. Evaluating the alternatives on this bases alone, Alternative B fails to return groundwater to its beneficial uses within a timeframe that is reasonable given the particular circumstances of the site.

Comment 60: Page 26, Diesel Fuel Alternatives, Alternative F, Bioventing and Passive

Recovery: The plan states, "the conceptual use of bioventing to remove diesel fuel inappropriately assumes biodegradation occurs within diesel fuel when present as floating product." This seemingly refers to this assumption being made in the Feasibility Study ("FS"). However, the FS does not state that "biodegradation occurs within diesel fuel when present as floating product." The venting described in Alternative F will deplete "floating product" over time; however, it does not primarily rely on delivering oxygen to soil water with the zone containing the highest percentage contents of product in soil pores. It is true that the alternative seeks to take advantage of air-to-water contact in smear zone soil pores to deliver oxygen to microorganisms that degrade hydrocarbons in aqueous solution (i.e., dissolved in soil water). Reductions in "free product" volume will occur through organic phase to aqueous phase partitioning of hydrocarbons followed by aerobic degradation. Non-aqueous phase liquid (NAPL) hydrocarbon is present in soil pores as a three-phase system (i.e., air, water, product) even where "floating product" is present (although the percentage of air may be negligible in the zone of highest product saturation). As the water table fluctuates seasonally, "floating product" will be diminished as mobile "floating" NAPL is pushed up into the smear zone (where renewed capacity to retain this NAPL has been created by aerobic degradation of a portion of the hydrocarbons previously present). Through water table fluctuations over time, oxygen will contact the product present in all of the soil pores. If this were not the case, "floating product" would remain on the water table at fuel release sites indefinitely, and monitoring of natural attenuation sites demonstrate that is not the case. Since the stated objective of the plan is reduction in toxicity, mobility, and volume, the plan should explain why venting, which achieves all three of these criteria, is "not acceptable technology."

The plan's basis for whether this approach meets the ERCLs appears to hinge on removal to the maximum extent practicable." The interpretation of the term "removal" appears to be inconsistent with the intent of the RCRA regulatory language as interpreted by the U.S. Environmental Protection Agency (EPA). EPA did not, apparently, intend to preclude the use of in situ bioremediation as an acceptable means of "removing" "free product". EPA has issued Records of Decision where bioventing has been used to address "floating product" in lieu of any physical product removal (e.g. Eielson Air Force Base, Alaska). The apparent rejection as "unacceptable" of one of the best available technologies for remediation of "free product" needs to be reconsidered, particularly in light of EPA's acceptance of in situ aerobic degradation of "free product" and available research (see attached article entitled "Estimation of Biodegradation Rates Using Respiration Tests During In Situ Bioremediation of Weathered Diesel NAPL," Spring 1998 issue of *Ground Water Monitoring and Remediation*).

Response 60: Please refer to Response #58 regarding reasonable timeframes for MNA.

DEQ agrees that bioventing will remove or degrade NAPL coexisting with air and water in the soil pores in the vadose zone. It is for this reason that the ROD mandates bioventing to remediate fringe areas of the free product plume. However, without removal of the mobile free product source (passive recovery), the process described in this comment will not remediate free product in a reasonable timeframe. As described in the comment, petroleum compounds can only be biodegraded when they are dissolved in pore water. The limited amount of pore water available in the smear zone soil pores, coupled with the low solubilities of the residual diesel fuel compounds, drastically limits the rate at which contaminant mass can be removed from the floating free product.

Phase I of the selected remedy locates most of the passive recovery wells within the thickest part of the plume and most of the bioventing wells on the perimeter, or fringe area of the plume. Passive recovery in the thickest portion and bioventing on the fringe areas of the plume are appropriate applications for these two technologies.

There seems to be a misunderstanding about the evaluation of Alternative F and Modified Alternative F. Test Cell 1 successfully recovered diesel fuel at a rate of 1.7 gallons/day (assuming a 20-foot radius of influence) in a four-month period. The biodegradation test indicated 9.6 gallons/day of diesel fuel were degraded within a 150-foot radius of influence. Using a 20-foot radius of influence, biodegradation would remove diesel fuel at a rate of 0.17 gallons/day. Therefore, passive recovery is 10 times faster at removing diesel fuel than bioventing.

The commenter indicates that EPA has issued numerous RODs where bioventing has been used to address free product in lieu of physical product removal and cites one instance (Eielson Air Force Base, Alaska). DEQ disagrees with this characterization and also believes that Eielson Air Force Base is an isolated site with characteristics not comparable to LRY. The selected remedy in the 1994 ROD does not solely rely on bioventing to address floating product; it includes a passive skimming system similar to that proposed by DEQ for the LRY. Also, the bioventing system described in the Eielson ROD is a combination bioventing system and soil vapor extraction (SVE) system. An SVE removes contaminants from the subsurface through volatilization, which is a much more robust and effective process than bioventing. SVE is appropriate at Eielson because the primary contaminant is Jet Propulsion Fuel #4 (JP4), which is a light-end military jet fuel that is highly volatile and more closely related to gasoline than to diesel. An SVE system, which is appropriate for volatizing JP4, is not effective on weathered diesel, and was never proposed as a potential technology in the FS for diesel fuel.

The attached article entitled "Estimation of Biodegradation Rates Using Respiration Tests During In Situ Bioremediation of Weathered Diesel NAPL," Spring 1998 issue of *Ground Water Monitoring and Remediation* does not discuss bioventing in the context of removing mobile free product. It refers to remediating NAPL that coexists in soil pore spaces with air and water, not mobile NAPL (or free product defined above) similar to what exists at LRY. Also, the study achieved degradation of NAPL through bioventing coupled with depressing the water table up to 4 meters. However, depression of the water table, or "active free product recovery" as described in the FS is not advocated by the commenter. The article may be useful as a reference in designing methods of measuring degradation rates achieved in the fringe areas of the plume

where bioventing will be utilized.

Comment 61: Page 26, Diesel Fuel Alternatives, Modified Alternative F, Expanded Passive Recovery, Monitoring and Bioventing, paragraphs one and two: The plan provides that DEQ "would determine if residual diesel fuel would require additional evaluation and remediation." Residual diesel at the water table was assigned no risk in the risk assessment and has no regulatory drivers to require remediation. Therefore, it should not be considered for remediation.

BNSF concurs with the use of bioventing (bio-venting or bio-remediation) for remediation of "free product"; however, the proposed plan only mentions "enhanced biodegradation of residual diesel fuel adsorbed to soil." Because the cleanup levels for diesel fuel do not address "residual diesel fuel adsorbed to soil," there is no need for bioventing. In fact, the proposed plan states, "little or no free product remains in this area," implying that the cleanup level (i.e., 1/8 inch) has already been met.

Response 61: The BRA did not identify petroleum as a risk because at the time the BRA was conducted there was not an established procedure by which to quantitatively evaluate risk from petroleum. There has been considerable development in recent years regarding the risk posed by petroleum contamination in soils and groundwater. DEQ developed Risk-Based Corrective Action (RBCA) Tier I guidance that identifies screening levels for petroleum fractions and compounds in soil and groundwater. The screening levels consider risk to human health and leaching from soil to groundwater. At certain levels, petroleum in soil and groundwater does present an unacceptable risk to human health. In addition, the selected remedy must be protective of human health, safety, welfare and of the environment (emphasis added). DEQ interprets this to include protection of groundwater. The ROD identifies cleanup levels for petroleum in soil and groundwater. The majority of these are based on attainment of the State's groundwater standards. Please refer to Response #5 regarding the ineffectiveness of bioventing in treating free product.

Comment 62: Page 26, Diesel Fuel Alternatives, Modified Alternative F, Expanded Passive Recovery, Monitoring and Bioventing, paragraph three: Are "concentrations of diesel fuel constituents in groundwater" being addressed by the proposed plan? There is no indication in the RI, FS, Baseline Risk Assessment, or proposed plan indicating that "concentrations of diesel fuel constituents in ground water" pose any risk either to human health or the environment or that dissolved hydrocarbons cleanup levels have been established or exceeded for the site. None of the diesel fuel constituents were selected as chemicals of concern in the risk assessment.

Response 62: Please refer to Response #61.

Comment 63: Page 26, Diesel Fuel Alternatives, Modified Alternative F, Expanded Passive Recovery, Monitoring and Bioventing, paragraph four: The plan fails to articulate how the ten (10) year time frame established for bioventing was determined. This time frame is much longer than the typical bioventing time frame to address residual product in soil.

Response 63: The number of years to complete alternatives A through F were provided by BNSF and are based on different assumptions than DEQ's on the volume of diesel fuel remaining and the volume of diesel fuel that needs to be removed. DEQ believes the number of years to complete the remedy is underestimated. Actual years to perform diesel fuel passive recovery and bioventing will be based on the documented performance of the recovery system. However, consistent with FS guidance and MNA guidance, assumptions were consistently applied for each alternative considered.

DEQ's remedy includes initiating bioventing in appropriate areas in Phase I, with additional bioventing wells being added during Phase II in areas where free-product is removed to the "maximum extent practicable." DEQ estimated that Phase I may take approximately 10 years for bioventing to show reductions in residual petroleum. Phase I will include soil sampling and respiration tests and possibly other methods to evaluate the effectiveness of bioventing. Once petroleum constituents in groundwater reach cleanup levels, DEQ will re-evaluate the need to continue bioventing of residual petroleum in subsurface soils, which will include an evaluation of confirmation soil samples at depths that might be encountered by construction workers.

Comment 64: Page 28, Evaluation of Diesel Fuel Alternatives, No. 1, Overall Protection of Public Health and the Environment: This evaluation incorrectly portrays the comparison of overall protectiveness of public health and the environment. Since the "free product" at the Livingston site poses no tangible threat to human health or to the environment, the alternatives are all essentially equivalent in this regard. Also, diesel fuel will "remain on top of the groundwater" under all of the alternatives, the only potential difference among the alternatives being the time frame during which product may enter monitoring wells and be measured.

Response 64: This comment assumes petroleum poses no risk to human health and the environment. Please refer to Response #61. Therefore, DEQ's evaluation of overall protectiveness is correct. BNSF states diesel fuel will remain after remediation efforts have stopped. While there may be limited pockets of free product that remain within the plume, it is expected to naturally attenuate. Since the volume will be reduced by passive recovery and bioventing, the time for attenuation will be reduced. Reducing the time to cleanup diesel fuel is desirable.

Comment 65: Page 28, Evaluation of Diesel Fuel Alternatives, No. 2. Compliance with ERCLs: See Comment No. 18, above. *This refers to DEQ's renumbered comment 55*. Alternative F appears to address roughly the same area as Modified Alternative F. The operative word in this analysis appears to be "recovery." Does the plan imply that recovery (which involves potential human exposures while extracting, separating, transporting, re-refining, and burning fuel) is required to the exclusion of a remedial technology that destroys/detoxifies the same fuel in situ?

Response 65: The difference is time to complete the remediation. Please refer to Response #60. BNSF states that the operative word is recovery. This is correct. As stated in Response #60, the rate of passive recovery is ten times the rate of biodegradation. Both technologies have application at this site. Recovery is applicable in the center of the diesel plume and bioventing is applicable at the edges of the plume, where recovery would be slow.

Comment 66: Page 28, Evaluation of Diesel Fuel Alternatives, No. 3. Long-term

Effectiveness and Permanence: The statement that "Alternatives A, B, and E would not be as effective over the long term compared to Alternatives C, D, and Modified Alternative F" lacks any technical basis. See Comment No. 25 above. *This refers to DEQ's renumbered comment #* 64.

Response 66: The commenter is implying that eventually all contamination is remediated naturally, even under the no action alternative. However, this is not what is contemplated by either CECRA or CERCLA. The statement is made in comparison to the other alternatives. Long-term effectiveness and permanence refers to the ability of an alternative to maintain reliable protection of human health and the environment over time. By actively removing free product, the three alternatives offer substantially more long-term effectiveness and permanence than the other remedies suggested by the commenter (including no action, ICs, and limited area recovery), which do not actively remove the source of contamination to soils and groundwater.

Comment 67: Page 28, Evaluation of Diesel Fuel Alternatives, No. 4. Reduction in Toxicity, Mobility and Volume: The plan fails to provide any scientific or technical basis for the implication that the physical removal of a relatively small amount of "free product" is somehow superior in reducing toxicity, mobility, and volume to the in situ degradation of a large mass of more soluble hydrocarbon.

Response 67: The primary reasons for requiring free product removal at the site are based on legal requirements, the importance of source control prior to implementing natural attenuation, the immediate risk to the environment and the potential public health, safety, and welfare concerns posed by the constituents of free product and loss of beneficial uses posed by free product.

The physical removal of free product reduces the toxicity, mobility and volume of petroleum. In situ degradation will not reduce toxicity, mobility, and volume of free product in comparision to all the alternatives but the no action alternative; it would reduce toxicity, mobility, and volume of residual petroleum after free product is removed. Please refer to Response #60 regarding the effectiveness of in situ degradation at removing free product.

Removal of free product through passive remediation will fulfill the criteria for volume reduction better and more effectively than natural attenuation alone. Response #60 gives scientific basis for this position. According to pilot tests data interpretation, bioventing with forced exchange of oxygen is ten times slower and therefore less effective than passive recovery. Therefore, natural attenuation would be much slower than bioventing, as natural oxygen exchange in the soil is slower than the forced exchange of oxygen. With natural attenuation we can assume a period of 100 years or more before any observable volume decreases occur.

<u>Comment 68: Page 28, Evaluation of Diesel Fuel Alternatives, No. 5, Short-term</u>
<u>Effectiveness:</u> This section should include a discussion addressing worker safety during the operation of the remedial systems.

Response 68: DEQ considered worker safety during implementation and operation of the remedy. Please refer to Section IX "Summary of Comparative Analysis of Alternatives" in the ROD.

<u>Comment 69: Page 30, Scope of Preferred Remedy:</u> The plan's cost-effective determination appears to be flawed, as less costly remedies will afford the same degree of protectiveness to human health and the environment with substantially less short-term risk.

Response 69: The determination is not flawed. The FS simply stated the estimated cost of each alternative. DEQ is not required to just compare cost-effectiveness with short-term risk to human health. DEQ considered the costs, the degree of overall protectiveness of human health and of the environment (including short-term risk), and other benefits of the evaluated alternatives. In the proposed plan Table 2, Comparison of Alternatives Using Eight Criteria, identifies only Alternatives C and D equal to Modified F in Overall Protection of Public Health and the Environment. Alternative D had a lower cost rating; however, the FS states that pumping groundwater would merely smear free product into previously uncontaminated alluvium and prevent recovery and also contribute to the mobility of VOCs. All three alternatives have poor short-term effectiveness ratings. Please refer to Response #3 and Response #68 regarding worker safety.

Comment 70: Page 32, The Preferred Remedy, I. Source Removal: BNSF agrees to proceed with the source control work outlined in the Proposed Plan. In fact, BNSF will be submitting for DEQ's review and approval a work plan for the electric shop portion of the excavation work. BNSF believes that the electric shop work plan can be implemented as an Interim Action under the Modified Partial Consent Decree (December 1989). BNSF will treat, with lime/SVE process, the soil exhibiting a hazardous characteristic to meet the land disposal restrictions, if disposed on land.

Response 70: In addition to exhibiting hazardous characteristics, DEQ has determined the soil at the electric shop contains a listed hazardous waste. Please refer to the ERCLs in Appendix A.

Comment 71: Page 33, The Preferred Remedy, II. Groundwater: BNSF agrees to work with DEQ, Park County, and the city of Livingston to implement the institutional controls related to the use of groundwater at the facility. In addition, BNSF agrees to develop a groundwater sampling schedule with DEQ to monitor remediation efforts.

Response 71: Please refer to Responses #35(B).

<u>Comment 72: Page 33, The Preferred Remedy, III. Diesel Fuel, paragraph one:</u> What is the basis for he[sic] plan's well spacing and configuration design?

Response 72: The well spacings given in the plan for both passive recovery and bioventing wells are based on pilot testing completed at the site. The radius of influences used were 20 feet for passive recovery wells and 150 feet for bioventing wells. DEQ does not anticipate, however, that wells will be installed every 20 feet. The well field configuration considers ease of well

installation and placement of utility corridors. Removing more of track four creates a corridor through the center of the plume.

<u>Comment 73: Page 33, The Preferred Remedy, III. Diesel Fuel, paragraph two:</u> BNSF agrees to proceed with additional "free product" recovery, although BNSF believes that a different approach from the one called for in the Proposed Plan would be even better suited to achieving DEQ and BNSF's goals for remediating the "free product". BNSF would like to work with DEQ to formulate an alternative design as provided for on page 34, in the last paragraph of The Preferred Remedy, III. Diesel Fuel, section.

Response 73: Based on the RI and FS, DEQ has formulated an appropriate phased hydrocarbon recovery system. BNSF may propose additional free product recovery designs be included as part of Phase I remedial design in order to evaluate further systems. Effective well placement, construction, design and operation will lead to successful free product recovery.

Comment 74: Page 33, The Preferred Remedy, III. Diesel Fuel, paragraph three: BNSF, for safety reasons, is opposed to drilling through the tunnel beneath the tracks or having workers conduct remediation activities in the tunnel. The basis for this opposition is that BNSF believes that significant risk to workers safety would result in drilling through the tunnel and placing workers in a confined area where there potentially could be hydrocarbon fumes.

Response 74: Comment 33: Please refer to Response #3, Response #7, and Response #35(C) regarding worker safety and the MRL Tunnel. DEQ is confused by BNSF's concern about workers' exposure to hydrocarbon fumes, since the commenter's earlier comments indicate it does not believe that free product or hydrocarbon contamination poses a human health risk at the site.

Comment 75: Page 33, The Preferred Remedy, III. Diesel Fuel, paragraph four: Although, BNSF agrees to proceed with additional recovery efforts, BNSF is reluctant to install wells within the active portions of the railyard. BNSF believes that, given the lack of risk posed by the plume to the public, exposing remediation workers, Livingston Rebuild Center workers, and Montana Rail Link personnel to continuously high risk work situation is inconsistent with the goals of decreasing the overall risk at the facility. In addition, given the minimal risk posed by the "free product," the plan's evaluation of cost-effectiveness is inadequate and does not comply with § 75-10-721, MCA.

Response 75: Please refer to Response #3, Response #7, and Response #35(C) regarding worker safety and the MRL Tunnel. DEQ believes MRL and Talgo-LRC, in conjunction with BNSF and its contractors, can implement and maintain a safe diesel fuel recovery system.

<u>Comment 76: Page 34, The Preferred Remedy, IV. Asbestos, paragraph one:</u> BNSF has fenced the cinder pile. BNSF will sample the surface soils of the cinder pile, and work with DEQ to identify an appropriate remedy for the cinder pile. Such remedy may include capping and/or re-contouring the cinder pile.

Response 76: Please refer to Response #7 and Response #23 regarding the cinder pile. DEQ has determined that additional sampling of the cinder pile will not be necessary, since all the previous VOC data indicate that the cinder pile soils meet cleanup levels.

Comment 77: Page 34, The Preferred Remedy, IV. Asbestos, paragraph two: The plan should point out that air samples collected downwind from the cinder pile during the Remedial Investigation did not show asbestos migrating from the pile, or reveal any problems associated with any migration of asbestos from the pile.

Response 77: Envirocon obtained 14 samples at the cinder pile as part of the surficial soil sampling event. None of the samples showed asbestos to be present; however, DEQ obtained samples of three waste materials on the cinder pile, which contained asbestos. The ROD provides information about the potential risk from asbestos in the cinder pile. Please refer to Response # 7 regarding the cinder pile.

<u>Comment 78: Page 34, The Preferred Remedy, V. Sampling:</u> BNSF agrees to sample indoor air as requested. However, as noted above in the general comments, and as identified in earlier indoor air sampling, it is very difficult to attribute the presence of contaminants to the Livingston Railyard. This is due to the difficulty in distinguishing between background contaminants and contaminants coming from the site.

Response 78: An important part of any indoor air sampling program includes evaluating ambient air and conducting detailed surveys with the homeowner prior to and during the sampling event. Information in surveys and ambient air data provide information about potential solvents present in household products and assists in separating background contaminants present in homes from contaminants at the site. The consent decree scope of work and subsequent work plan for indoor air sampling will address this issue.

Comment 79: Page 36, Evaluation of Preferred Remedy for Diesel Fuel, paragraph one: The proposed plan does not identify the threats to public health and the environment for which the preferred remedy affords protection. The "floating product" is apparently immobile, is not causing groundwater or surface water contamination requiring separate actions, and is separated from potential contact by a thick unsaturated soil covering.

Response 79: DEQ disagrees with the statement that floating product is apparently immobile, not causing groundwater or surface water contamination requiring separate actions. Data in the RI shows diesel fuel has migrated from the predominant spill release area (refueling area with underground storage tanks and along track 11) and TPH and TPH chemical constituents are detected in groundwater, especially in wells along Park Street. Please refer to Response #61 regarding petroleum risk.

Comment 80: Page 36, Evaluation of Preferred Remedy for Diesel Fuel, paragraph two: Operation and maintenance of recovery systems between active tracks poses a very real and tangible worker hazard that should be compared to the incremental risk reduction, if any, afforded by the installation and operation of such recovery systems. It is not worth incurring a

substantial risk of a serious worker injury or fatality to remove product that poses no significant risk to human health or to the environment.

Response 80: As previously stated, BNSF's contractor has demonstrated diesel fuel recovery systems can be installed, operated and maintained within the active railyard without worker injury, provided careful planning, coordination and communication are a priority. Please refer to Response #3 and Response #7 regarding worker safety and the MRL Tunnel.

<u>Comment 81: Page 37, Glossary, Free Product:</u> The plan defines free product as "diesel fuel floating on top of the groundwater." This definition is confusing and not technically based. Free product should be by its common technical definition, which defines free product as "product that will drain under the influence of gravity into a well."

Response 81: Defining free product as "product that will drain under the influence of gravity into a well" implies free product is only recoverable if gravity forces it into a well. Under this definition free product will not be recovered unless it enters a well by gravity. Utilizing vacuum enhanced free product recovery, free product can also enter a well by applying a vacuum on the well. Therefore, free product can also enter a well under a vacuum and be recovered. DEQ will use EPA's definition of free product: "Immiscible liquid phase hydrocarbon existing in the subsurface with a positive pressure such that it can flow into a well." Please refer to Response #35(C) regarding the definition of free product.

3.9 Comments from Envirocon, Inc.

<u>Comment 82(A):</u> The federal regulation relied upon by DEQ to require cleanup of free product to the maximum extent practicable is superseded by Montana regulations which do not contain that standard.

DEQ states that it "will require cleanup of the free product to the maximum extent practicable. This requirement is, in part, from a federal regulation which requires removal of free product to the maximum extent practicable as determined by the implementing agency." (Proposed Plan, 14.) By this reference DEQ is apparently referring to 40 CFR 280.64. However, in Montana this regulation has been superseded and DEQ's reliance on the regulation is misplaced and inappropriate.

Under RCRA a state can develop its own petroleum UST program and seek approval from EPA to exercise primary responsibility in regulating USTs. Once the state obtains approval, the state plan will govern in lieu of the federal program. 325-343 E. 56th St. Corp. v. Mobil Oil Corp., 906 F. Supp. 699, 682 (D.D.C. 1995). Montana received final approval "to operate its underground storage tank program in lieu of the Federal program" on March 4, 1996 (61 Fed. Reg. 3599 (1996)). Accordingly, that standard is not applicable at this site.

Response 82(A): Whether a federal regulation is superseded by state regulation is not relevant to the analysis of whether the standard is an ERCL. Pursuant to § 75-10-721(2)(a) and (b), MCA (1993), DEQ "shall require cleanup consistent with applicable state or federal environmental requirements, criteria or limitations" and "shall consider and may require cleanup consistent with

substantive state or federal environmental requirements, criteria, or limitations that are well suited to the site conditions."²

DEQ disagrees with the commentor's statement that the UST standard is not applicable to the site. "Applicable" is defined in CERCLA regulations as, "those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance found at a CERCLA site." The regulation, 40 CFR 280, applies to all owners and operators of an UST system except in certain instances not relevant here.³ UST systems means "any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground."⁴ The Administrative Record shows that the Livingston Facility contained UST systems at the effective date of the regulations, as is evident from UST orders issued by DHES in 1988. The site also presently contains UST systems. To the extent certain UST systems were removed prior to the effective date of the regulations, diesel is found separate and distinct from an UST system, or UST regulations are not applicable, the UST requirements remain well suited since they address situations or problems sufficiently similar to those at the site. As set forth above, DEQ must consider and may require compliance with well suited requirements.

Comment 82(B): Moreover, even if this regulation were appropriately applied at a site in Montana, it is unlikely that it would be construed and applied in the same manner as DEQ is proposing here. The context of the reference to maximum extent practicable in this regulation suggests that the standard is contemplated for initial response after confirmation of a release (40 CFR 280.61) through initial site characterization (40 CFR 280.63) and "while . . . preparing for actions required" under the investigations (40 CFR 280.65) and corrective action provisions (40 CFR 280.66) of the federal UST regulations.

Further, in its explanation of Modified Alternative F DEQ states: "This alternative would protect

² When CECRA was amended during the 1995 legislative session, one of the revisions pertained to the development and selection of ERCLs. See i.e. Chapter 584, Laws of Montana, 1995. However, Section 15 of Chapter 584 stated that the 1995 revisions and amendments do not apply to civil actions commenced or begun prior to the effective date of the 1995 act. Since the complaint in State of Montana v. Burlington Northern, Inc., Burlington Northern Railroad Company and Glacier Park Company CV 88-141-H-CCL was filed December 27, 1988 and pertains to the Burlington Northern Livingston Railyard Site, and other Burlington Northern Facilities, these ERCLs comply with CECRA as amended in 1991, rather than CECRA as amended by Chapter 584, Laws of Montana, 1995.

³ 40 CFR 280.10 (2000).

⁴ 40 CFR 280.12 (2000).

public health and the environment and comply with the ERCLs because free product would be removed from groundwater to the maximum extent practicable." (Proposed Plan, 26.) However, the standard for approving a corrective action plan for responding to contaminated soils and ground water is found in a different federal regulation, 40 CFR 280.66. Under that regulation the standard for approval is that the "plan will adequately protect human health, safety, and the environment." (40 CFR 280.66(b)). Several of the proposed alternatives for free product removal satisfy this standard.

Response 82(B): DEQ believes that the removal of free product to the maximum extent practicable is applied throughout Subpart F of the UST regulations, entitled "Release Response and Corrective Action for UST systems Containing Petroleum or Hazardous Substances," culminating in corrective action. Even a cursory glance of Subpart F shows the importance of free product recovery: 40 CFR 280.65 requires investigations whenever "free product is found to need recovery in compliance with § 280.64" and 40 CFR 280.66 states the corrective action plan must have provisions for responding to contaminated soils and groundwater. The regulations allow the owner or operator to begin self-initiated cleanup, and they may, after fulfilling the requirements of 40 CFR 280.61 through 40 CFR 280.63, submit a corrective action plan responding to contaminated soil and groundwater (or the agency can require submittal of a plan). Removal of free product to the maximum extent practicable is part of the federal UST cleanup process in order to ensure adequate protection of public health, safety, and welfare and the environment.

For free product recovery as well as other remediation issues, DEQ has relied on the state and federal ERCLs. DEQ has considered certain EPA Documents such as "How to Effectively Recover Free Product At Leaking Underground Storage Tank Sites, A Guide for State Regulators" EPA 510-R-96-001 (September 1996) and "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," U.S. EPA, Office of Solid Waste and Emergency Response, Directive 9200.4-17P (April, 1999) as guidance in determining compliance with the federal UST ERCLs. In "How to Effectively Recover Free Product At Leaking Underground Storage Tank Sites, A Guide for State Regulators," EPA states:

The Federal regulations (40 CFR 280.64) state that at UST sites where investigations indicate the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. Typically, the implementing agency is represented by the state environmental agency or local fire prevention office. Where the threat is imminent (e.g., seepage of free product into basements or parking garages) an appropriate response would be immediate emergency action to prevent explosion or fire. Even where the consequences of the release are not immediately hazardous (e.g., contamination of groundwater resources) expeditious recovery of free product will contribute to minimizing the costs and time required for effective corrective action.

The decision-making process for determining the most appropriate corrective action is intended to develop a remedy to mitigate risks. Typically, the remedial approach is described in a corrective action plan (CAP) or other report along with

target clean-up levels to be achieved in an appropriate period of time. The corrective action specified in the CAP may include a combination of alternative techniques (*e.g.*, bioremediation, soil vapor extraction [SVE]), traditional remedial methods (*e.g.*, free product recovery, excavation, pump-and-treat), institutional controls (*e.g.*, deed restrictions), and natural attenuation. At most sites where significant volumes of petroleum have reached the water table, free product recovery is the first step of the remedial approach.

emphasis added.

The guidance, including the language cited here, as well as the UST regulations contained in Subpart F, show a clear intent to require cleanup of free product to the maximum extent practicable, throughout release response and corrective action.

In "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," EPA sets forth when natural attenuation is an appropriate alternative for corrective action under the UST program. The natural attenuation guidance states, "EPA expects that [MNA] will be an appropriate remediation method only where its use will be protective of human health and the environment and it will be capable of achieving site-specific remediation objectives within a time frame that is reasonable compared to the other alternatives."

Under the heading "Petroleum-Related Contaminants," EPA writes:

Natural attenuation processes, particularly biological degradation, are currently best documented at petroleum fuel spill sites. Under appropriate field conditions, the regulated compounds benzene, toluene, ethylbenzene, and xylene (BTEX) may naturally degrade through microbial activity and ultimately produce nontoxic end products (e.g., carbon dioxide and water). Where microbial activity is sufficiently rapid, the dissolved BTEX contaminant plume may stabilize (i.e., stop expanding), and contaminant concentrations in both groundwater and soil may eventually decrease to levels below regulatory standards. Following degradation of a dissolved BTEX plume, a residue consisting of heavier petroleum hydrocarbons of relatively low solubility and volatility will typically be left behind in the original source (spill) area. Although this residual contamination may have relatively low potential for further migration, it still may pose a threat to human health or the environment either from direct contact with soils in the source area or by continuing to slowly leach contaminants to groundwater. For these reasons, [MNA] alone is generally not sufficient to remediate petroleum release sites. Implementation of source control measures in conjunction with [MNA] is almost always necessary. Other controls (e.g., institutional controls), in accordance with applicable state and federal requirements, may also be necessary to ensure protection of human health and the environment.

Page 7 (emphasis added).

In addition, leaving available free product on the groundwater does not provide protection

of the environment, nor does it comply with water quality ERCLs.

Comment 82(C): Additionally, 40 CFR 280.64 identifies the actions required by an owner: conduct free product removal in a manner that minimizes the spread of contamination; use abatement of free product migration as a minimum objective for the design of the free product removal system; and handle any flammable products in a safe manner. Each of these actions has been accomplished by the actions taken to date and the proposed Alternative F - Bioventing and passive recovery. First, monitoring shows that the free product removal has been conducted in a manner that minimizes the spread of contamination. Second, monitoring shows that the plume is not migrating. The free product recovery system in Alternative F meets this objective with significantly fewer risks associated with conducting actions in an active railyard than the proposed alternative. Third, the products have been handled in a safe manner and will be handled in a safe manner under each of the alternatives.

Response 82(C): The commenter has cited only portions of 40 CFR 280.64; 40 CFR 280.64 provides that where investigations in connection with an UST system reveals the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. This regulation requires that the free product removal be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, state and federal regulations. In addition, 40 CFR 280.61(a)(6) requires commencement of free product removal to begin as soon as practicable and in accordance with 40 CFR 280.64.

Abatement of free product migration is a minimum objective for the design of the free product removal system. In addition, any flammable products must be handled in a safe and competent manner to prevent fires or explosions. The Montana regulations regarding underground storage tanks include similar requirements set forth at ARM 17.56.602(3).

<u>Comment 83:</u> The DEQ cannot enforce a "policy" as a regulation unless the policy has gone through the rule-making process and been subject to the due process criteria contained in the Montana Administrative Procedure Act ("MAPA").

The DEQ has stated that it is relying upon a memorandum dated June 16, 1997, concerning the DEQ criteria for "remove free product to the maximum extent practicable." Under MAPA (M.C.A. 2-4-101 et seq.) the criteria that the DEQ is relying upon here would be defined as a rule because it is a standard "or statement of general applicability that implement, interprets, or prescribes law or policy . . ." (M.C.A. § 2-4-102(1 1). However, before a rule is enforceable, the proposed criteria must go through a notice, hearing, and public comment process detailed in M.C.A. § 2-4-302. "A rule is not valid unless notice of it is given and it is adopted in substantial compliance with § 2-4-302, 2-4-303, 2-4-306 and this section and unless notice of adoption of

⁵ Free product investigations are required upon discovery of a release under both State and federal law. See 40 CFR 280.62(6) and ARM 17.56.602(3).

the rule is published within 6 months of the publishing of notice of the proposed rule." M.C.A. § 2-4-305(7). The DEQ criteria contained in the June 16, 1997, memorandum cannot be enforced as a mandatory obligation at the Livingston Shop Complex because it purports to interpret and prescribe a policy about a "maximum extent practicable" standard yet it is invalid as a rule because the DEQ has not complied with the notice, hearing, and public comment process prescribed by MAPA to ensure due process.

The DEQ states that: "This site is being cleaned up pursuant to Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA)." (Proposed Plan, 15.) However, as discussed in the preceding paragraph, MAPA poses limitations on actions carried out under CECRA. And while DEQ interprets and implements CECRA through policy and actions, for all of the reasons identified in the preceding paragraph, these "de-facto" rules are not mandatory or enforceable because of the failure to subject them to proper rule-making under M.C.A. § 2-4-101, et seq.

Response 83: In developing this Record of Decision, DEQ did not rely on the referenced June 16, 1997, memorandum. DEQ relies instead on the ERCLs, including the Underground Storage Tanks and Water Quality standards as well as the requirement for the remedy to protect of public health, safety, and welfare and of the environment.

Maximum extent practicable: The removal to less than $^{1}/_{8}$ inch cleanup standard for free product is from two UST regulations. 40 CFR 280.64 (2000) provides that where investigations in connection with leaking underground storage tanks reveal the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. 40 CFR 280.43 (2000) specifies groundwater monitoring requirements for underground storage tanks and and requires continuous monitoring devices or manual methods used to detect the presence of at least $^{1}/_{8}$ of an inch of free product on top of the groundwater in the monitoring wells. 6 Below this $^{1}/_{8}$ inch standard, State and federal regulations would not view a release in need of corrective action as occuring if undetected. see 53 Fed. Reg. 37082, 37123.

In order to meet water quality standards including groundwater standards and the prohibition on pollution of State waters, rely on MNA, and be protective of the environment, removal of free product to the maximum extent practicable is necessary.

Compliance with MAPA: However, even if this memorandum was used, DEQ is not attempting to enforce a policy as a regulation. A rule under MAPA is a standard "or statement of *general* applicability that implement, interprets, or prescribes law or policy...." A CECRA remedy applies to a specific facility and is based on an evaluation of site-specific criteria.

Section 2-3-101, MCA, states that:

The legislature finds and declares pursuant to the mandate of Article II, section 8, of the 1972 Montana constitution that legislative guidelines should be established to secure to the people of Montana their constitutional right to be afforded

⁶ The State equivalent appears at ARM 17.56.407 (2001).

reasonable opportunity to participate in the operation of governmental agencies prior to the final decision of the agency.

Even a cursory reading of CECRA shows that remedy selection is separate and distinct from the requirements of MAPA, although the two statutes share much of the same requirements for public involvement. Montana statutes are replete with mandates for public participation. MAPA and CECRA are two such statutes. Under CECRA, the legislature has established a statutory framework for remedy decisions in § 75-10-721, MCA, and a role for public participation in § 75-10-713, MCA.

Section 75-10-713, MCA, provides that before final approval of any administrative order on consent, judicial approval of a consent decree, or upon making a final decision regarding a proposed remedial action, order, or decree, DEQ must publish a notice and brief description of the proposed order, decree, or final decision action in a daily newspaper of general circulation in the area affected and make copies of the proposal available to the public for public comment. In addition, DEQ must notify the county commissioners and governing bodies of cities, towns, and consolidated local governments impacted by a proposed remedial action. Upon request of certain entities, DEQ must conduct a public meeting at or near the facility for the purpose of receiving verbal comment regarding the proposed order or decree; and consider and respond to relevant written or verbal comments properly submitted during the comment period or at the public meeting. In addition, the Administrative Record supporting DEQ's approved order or decree must contain DEQ's responsiveness summary. The breadth of public participation provided for in CECRA is functionally equivalent to that provided for in MAPA.

Further, in making the remedy selection criteria at this site, DEQ relied on implementation of ARM 17.56.505 (2001) which require implementation of corrective action measures, including free product removal, for spills and overfills, and ARM 17.56.602(3)(b)(2001), which requires owners and operators to use abatement of free product migration as a minimum objective for the design of the free product removal system and ARM 17.56.407 (2001). DEQ also relied on water quality regulations ARM 17.30.1006 and ARM 17.30.1011 in setting the free product standard. ARM 17.55.111 (2001), CECRA's facility ranking regulation, requires a maximum priority designation to a facility that exhibits the presence of free product in significant quantities in the groundwater. Promulgation of all these state regulations did comply with MAPA.

Comment 84: CERCLA does not apply to free-product removal.

The DEQ states that the "remedy selection will be consistent" with its reliance on the federal CERCLA. (Proposed Plan, 15.) The preferred remedy for diesel fuel recovery, however, is inconsistent with CERCLA. First, by its terms CERCLA only applies to hazardous substances. The term hazardous substance is defined by CERCLA to exclude petroleum. 42 U.S.C. § 9601(14) states in part: "The term (hazardous substance) does not include petroleum, including crude oil or any fraction thereof ..." Thus, CERCLA does not apply to the free-product.

Second, EPA Guidance for identifying applicable standards and requirements at CERCLA sites is the CERCLA Compliance with Other Laws Manual (OSWER Directive 9234.1-01). This manual lists "the laws and regulations that establish the universe of applicable or relevant and

appropriate requirements." While this manual identifies several RCRA regulations it does not include the federal underground storage tank regulation that the DEQ relies on to explain the "maximum extent practicable" standard. Thus, under EPA guidance for CERCLA the "maximum extent practicable" standard is not an applicable or relevant and appropriate requirement.

Response 84:

The proposed plan does not state that the remedy is selected under CERCLA, as implied by the commenter. The proposed plan states that CECRA is modeled after CERCLA and because of the similarity, CERCLA selection criteria were used, which are consistent with the FS criteria set forth in the consent decree.

EPA's CERCLA Compliance with Other Laws Manual does not focus on petroleum and underground storage regulations because of CERCLA's petroleum exclusion, set forth at 42 USC 9601(14). It would be nonsensical for EPA's CERCLA guidance to focus on an area that is not regulated under its statute. The manual identifies other RCRA regulations since CERCLA clearly applies to, among other RCRA substances, listed and characteristic hazardous wastes. The lack of citations to UST regulations in EPA CERCLA guidance has no bearing on whether the petroleum substances are regulated under state law.

As required by the Consent Decree, DEQ has selected the proper remedy for the Burlington Northern Livingston Complex through a ROD process, drawing upon CERCLA and NCP for guidance or as otherwise appropriate and upon consideration of the remedial investigation report and feasibility study report at the Facility.

The selected remedy complies with CECRA, as amended in 1991, which does not contain a similar petroleum exclusion as CERCLA. CECRA requires that a remedial action performed must attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures present and future protection of public health, safety, and welfare and of the environment. See § 75-10-721(1), MCA (1993). The definition of hazardous or deleterious substance specifically includes "any petroleum product." See § 75-10-701(6)(d), MCA (1993). The diesel found at the site clearly meets the definition of petroleum product as "'[p]etroleum product' includes gasoline, crude oil (except for crude oil at production facilities subject to regulation under Title 82), fuel oil, diesel oil or fuel, lubricating oil, oil sludge or refuse, and any other petroleum-related product or waste or fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees F and 14.7 pounds per square inch absolute)." Section 75-10-701(10), MCA (1993).

In approving or carrying out remedial actions, the department: (a) shall require cleanup consistent with applicable state or federal environmental requirements, criteria, or limitations; (b) shall consider and may require cleanup consistent with substantive state or federal environmental requirements, criteria, or limitations that are well-suited to the site conditions. *See* §§ 75-10-721(1)(2), MCA (1993). Therefore, the inclusion of ERCLs involving free product is warranted and required. In addition, the free product is a source to the groundwater (the environment); a remedy protective of human health and the environment must address this contamination source.

<u>Comment 85:</u> Removal of free product to the maximum extent practicable as interpreted and applied by the DEQ does not comply with the statutory requirement that cleanup be cost-effective.

DEQ states that "[t]his site is being cleaned up pursuant to Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA)." The DEQ also states that it must "select and implement the remedy pursuant to CECRA as in effect in 1993." (Proposed Plan, 15.) The 1993 CECRA provision for remedy selections states in pertinent part:

75-10-721(2) In approving or carrying out remedial actions performed under this part, the department:

- (a) shall require cleanup consistent with applicable state or federal environmental requirements, criteria, or limitations;
- (b) shall consider and may require cleanup consistent with substantive state or federal environmental requirements, criteria, or limitations that are well-suited to the site conditions; and
- (c) shall select remedial actions that, at a minimum, protect public health, safety, and welfare and the environment and that:
 - (i) use permanent solutions;
 - (ii) use alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
 - (iii) are cost-effective, taking into account the total short-and long-term costs of the actions, including the cost of operation and maintenance activities for the entire period during which the activities will be required.

The statute mandates that the selected remedy be cost-effective and explains that all of the long and short term costs and operation and maintenance costs be considered in evaluating whether a proposal is cost-effective. The DEQ preferred remedy for diesel fuel recovery is the most expensive alternative considered by the DEQ, yet the DEQ does not offer any explanation of how this alternative complies with the statutory mandate that the selected remedy be cost-effective. Moreover, the DEQ did not consider all of the costs associated with the operations alterations that are necessitated by this proposal. Under the preferred remedy a recovery system would be installed amongst 18 active rail tracks which means (at a minimum) that additional workers are needed to address safety issues and that each task is more time consuming as it requires coordination with the operations. The operator's costs for business interruption, slow-down, and coordination with the remediation contractor are also "short- and long-term costs of the actions" which the DEQ has not considered but which make the most expensive alternative even more expensive. This preferred remedy is the most expensive alternative, does not include all costs, and does not meet the statutory criteria of cost-effectiveness.

A 1995 amendment to the statute dictates how cost-effectiveness is determined. It states:

75-10-721(5) For purposes of this section, cost-effectiveness must be determined through an analysis for incremental costs and incremental risk reduction and other benefits of alternatives considered, taking into account the total anticipated short-

term and long-term costs of remedial action alternatives considered, including the total anticipated cost of operation and maintenance activities.

The preferred remedy also fails this statutory standard of cost-effectiveness because while the DEQ identifies this as the most expensive remedy, the remedy does not achieve any risk reduction. The bottom line is that there is no net risk-reduction to be gained as a result of the proposed large expenditure.

Response 85: Primary among CECRA's mandates is the requirement that the remedy "must attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures present and future protection of public health, safety, and welfare and of the environment." Section 75-10-721(1), MCA (1993). DEQ "shall require cleanup consistent with applicable state or federal environmental requirements, criteria or limitations" and "shall consider and may require cleanup consistent with substantive state or federal environmental requirements, criteria, or limitations that are well suited to the site conditions." Section 75-10-721(2), MCA (1993).

In addition, § 75-10-721(2)(c), MCA (1993) states that DEQ shall select remedial actions that, at a minimum, protect public health, safety, and welfare and the environment and that: (i) use permanent solutions (ii) use alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (iii) are cost-effective, taking into account the total short- and long-term costs of the actions, including the cost of operations and maintenance activities for the entire period during which the activities will be required. However, the requirements set forth in § 75-10-721(2)(c), MCA (1993), do not modify the mandatory application of applicable and well-suited requirements of § 75-10-721(2)(a)(b), MCA (1993).

The referenced amendment to § 75-10-721, MCA, is inapplicable to the Livingston due to the applicability of the 1995 legislative savings clause. The 1991 CECRA language, in contrast to the 1995 CECRA language, reflects the cost-effectiveness language contained in CERCLA. Even assuming that the 1995 amendments did apply to this facility, the selected remedy still meets the cost-effectiveness definition.

The cost-effectiveness of the selected remedy is set forth in the Statutory Determinations section of the ROD. The selected remedy was not, as the commenter states, necessarily the most expensive alternative evaluated if assumptions consistently applied for each alternative are considered. However, because the proposed plan is the public's opportunity to evaluate the alternatives and proposed remedy, DEQ included costs which would most certainly be applicable to other alternatives. For instance, diesel fuel monitoring would be included for all alternatives, except for the no action alternative. In addition, the additional costs cited by the commenter would be applicable to alternatives C and D. However, Phase I well locations have been placed to cause as little disruption to on-going operations as necessary while still recovering free product from what is viewed as the thickest part of the plume. Please refer to Response #3 regarding ongoing operations, including health and safety issues.

The estimated cost of the selected remedy is \$2,229,028. To a large extent, the remedy relies on natural attenuation after initial source removal rather than pump and treat technologies. In

addition, asbestos waste is capped rather than removed and the diesel recovery is being implemented in a phased approach, building on knowledge gained in the previous phase. Each of these offers a cost-effective alternative as the selected remedy while still assuring protection of public health, safety, and welfare and the environment as well as compliance with applicable state or federal ERCLs and substantive state or federal ERCLs that are well suited to site conditions. Source removal, although causing greater short-term costs, significantly reduces long-term costs and also allows the remedy to avoid pump and treat technologies. Short-term costs due to safety concerns provide added protection in proportion to its costs. Some of the costs referenced by the commenter, such as spotter costs, were included in the cost estimates. The additional cost of long-term monitoring is reasonably related to the greater overall effectiveness of the selected remedy.

<u>Comment 86:</u> Removal of free product to the "maximum extent practicable" is inconsistent with the Consent Decree which requires actions which are "reasonably designed to protect the public health, welfare, and the environment."

The 1990 Partial Consent Decree, Order and Judgment between the State of Montana and BN ("Consent Decree") governs the selection of a remedy for the Livingston Shop Complex. The Consent Decree identified BN's obligations as "the performance . . . of actions which are reasonably designed to protect the public health, welfare, and environment at or from the Livingston . . . facilities." (Consent Decree, 10.) Because free product migration has already been abated through the implementation of interim actions and there are no present human health concerns associated with the free product the preferred remedy for free-product is unreasonable and not designed to protect the public health, welfare, and the environment.

Response 86: The Consent Decree language cited by the commenter is an obligation placed on BNSF rather than DEQ. Nevertheless, the consent decree requires DEQ to select the proper remedy for the Burlington Northern Livingston Complex through a ROD process, drawing upon CERCLA and NCP for guidance or as otherwise appropriate and upon consideration of the remedial investigation report and feasibility study report at the Facility.

For remedy selection under CECRA, § 75-10-721(2)(c), MCA (1993) states that DEQ "shall select remedial actions that, at a minimum, protect public health, safety, and welfare and the environment." Please refer to Response #61 regarding the risk posed by petroleum contamination in soils and groundwater. In addition, the statute requires protection of public health, safety, *and* welfare *and* the environment *and* compliance with ERCLs.

Extensive free product remains. As set forth in the ERCLs, attached as Attachment A, several ERCLs require the removal of the free product to the maximum extent practicable. First, under the underground storage tank ERCLs, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. In addition, the state's groundwater resource is addressed under the water quality ERCLs which prohibits the causing of pollution of any state waters. Leaving the source contributes to exceedances of water quality standards and fails to allow its beneficial uses. In addition, water quality ERCLs make it unlawful to place or cause to be placed any wastes where they will cause pollution of any state waters. Only removal of the free product to the cleanup level will allow for protection of the

groundwater resource. In addition, removal of free product will comply with nondegradation laws by assuring there will not be plume expansion.

5.0 RESPONSES TO WRITTEN COMMENTS RECEIVED AFTER THE COMMENT PERIOD

5.1 Comments from Washington Corporations

Comment 87: This letter is written to inform you of factual errors contained in the Site Background section of the Proposed Plan for the Burlington Northern Santa Fe Livingston Shop Complex and to request that corrections be made to the record. The first paragraph of the Site Background section contains the following sentence, on page 4: "In 1987 Washington Corporation(sic) of Missoula, Montana purchased the complex and operated the Livingston Rebuild Center (LRC) and Montana Rail Link (MRL) at the site." With regard to that sentence please be advised of the following:

- 1) Washington Corporations never purchased the Livingston Shop Complex;
- 2) Washington Corporations has never owned the Livingston Shop Complex;
- 3) Washington Corporations has never operated the Livingston Rebuild Center; and
- 4) Washington Corporations has never operated Montana Rail Link.

Response 87: Comment noted. Montana Rail Link (MRL) purchased the buildings within the Livingston complex from BNSF in 1987 and began operation of MRL at the site. A group of shareholders owned and operated the Livingston Rebuild Center (LRC) until its sale in 2000 to Talgo-LRC, LLC and the USA Northwest, Inc. The Talgo-LRC company rebuilds locomotives and railroad cars and MRL performs locomotive repairs and maintenance. Both MRL and Talgo-LRC continue to operate at the site.

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